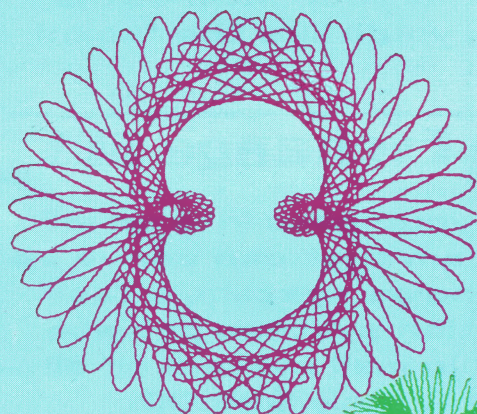


# The Australian Apple Review



**Integrated programs for  
the Apple II**

**Microcomputer  
Art**

**Masterchart!**

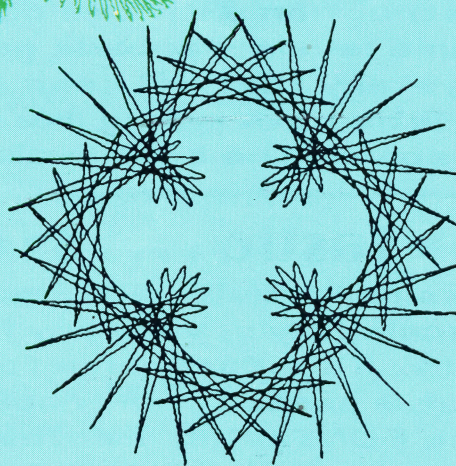
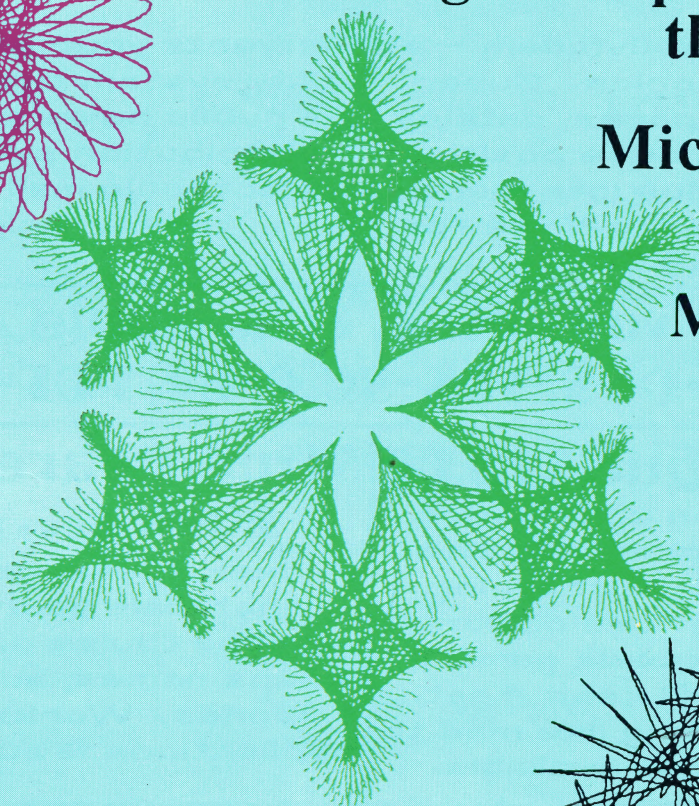
**New  
books**

**Dark  
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**The golden  
mouse**

**Macintosh +  
Laserwriter =  
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**Help with your dBase list**





# Macintosh

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# The Australian Apple Review

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**The Australian Apple Review**  
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THE NEW LOOK at Apple seems to have revived interest in the product right around the world. As the idea begins to percolate through that Apple management is as willing and as keen to support the Apple II line as they are the Macintosh, it seems programmers are coming out of the woodwork with new programs and new concepts. Many of them are ready, willing and eager to take advantage of the new one megabyte memory board which has, almost overnight, transformed the Apple II into a serious business machine. Especially now that the 800k disk drives are available as an optional extra.

Can the Apple II still be improved?

Sure.

Not, we think in chip technology. We are convinced there are few virtues in switching to 16 bit or even 32 bit technology. The Apple II was never that slow in performing and using the newly available optional RAM memory as a RAM disk means a program can run as fast on the Apple II as on any other machine. True, it may be no Speedy Luigi when it comes to number crunching but for most everyday uses the Apple II is more than

# Editorial

quick enough. Where the Apple II can be improved is in the keyboard. It has two problems as it stands.


First it is attached to the main body of the machine. Secondly, the space bar is less than perfect for a touch typist.

Detachable keyboards - *a la* the Macintosh - are now becoming an essential feature of modern machines. This is, in the main, due to Repetitive Strain Injury (or Kangaroo's Paw as the newspapers have it.) In West Germany the standards institute DIN have issued a ruling that machines with attached keyboards are not ergonomically acceptable.

Is there any problem in making the keyboard detachable?

None whatsoever. Indeed, for some period of time the young and lovely Ken Guntar of CompuMusic imported an optional add-on which plugged straight

into the motherboard. It will, of course, mean Apple will have to redesign the casing but they will have amortised the cost of those plastic moulds many times over by now. The second area where an improvement is indicated is in the positioning of the space bar. If you are a touch typist then the space bar is just too damn short. You keep banging away at the Open Apple or the Closed Apple keys.

If you are not a touch typist you may well consider this a minor point. But note the end user, who often is a touch typist, has a tremendous involvement in the final purchasing decision. By not changing the space bar Apple are putting off a large number of potential customers. None of this would matter if the new improvements to the Apple II had not converted it into a very useful business machine. But if it is to fulfil that function adequately there are still one or two minor improvements needed. This may not affect you if, like us, you are happy home hackers. Except that the greater success the Apple II has as a business machine the more programming support it will attract. 

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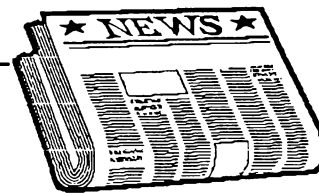
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# Bits and Bytes

## No more Jobs at Apple

Apple news this month is overshadowed by the resignation of Steve Jobs. As Gareth Powell implied in his overview of Apple Inc. in the last issue the sidelining of Steve Jobs in May was a drastic move. Amid widening disputes, Steve has severed the links and gone his own way.

The degree of ill feeling generated by this move is indicated by Apple now suing Steve for allegedly recruiting Apple staff for his new company and taking company secrets with him. This may become an incredibly difficult task when most US analysts saw him as the "creative spark" at Apple and clearly he must have walked out with some thoughts in his head.

Apple's suit claims Steve Jobs' conduct was "wanton, wilful, malicious and outrageous". Also charged in the suit was Richard Page, who previously held the title "Apple Fellow" and was working on Apple's "next generation computer". Page has joined Steve Jobs along with about four other senior employees.

Steve Jobs defended his actions by saying, "the company's recent re-organisation left me with no work to do and no access even to regular management reports.... I am but 30 and want still to contribute and achieve."

His new company will be looking to market a new, non Apple compatible computer to the high end of the educational market. And the finances for such a venture? It would be fair to say Steve Jobs is not the poorest person in the US. In 1982 he was identified as the youngest of the 400 richest individuals in the US, and he has just sold about \$US14 million of his shares in Apple.

For Apple this is a very trying time, but products and product direction have already been set for the next six to 12 months so the impact of Steve leaving will probably not be felt until late 1986. With the rate at which this industry

moves, it may ultimately mean only a ripple on the surface of a lake. However, one thing which cannot be doubted is that Apple Inc. is without a high level engineering manager - "the role Jobs filled with such flair."

## Good news for the IIs

The news which was foreshadowed was a wealth of Apple product releases. The prices here are all in Aussie dollars and the sales tax is included.

First is the BOOK, 3.5 inch drive for the IIs. This must be one of the longest coming necessities of all time, and will mean storage on one disk equivalent to about half a dozen 5.25" floppies. For those who can no longer wait for the optical disks to materialise (although the publisher still swears they exist), \$695 plus \$145 for the controller card is what will bring one to your Apple. And, another nice thing about this is that it will give the Apple more disk storage than the IBM - in the case of the JX, twice as much.

Then, there's the Imagewriter 2, which is a dot matrix, color printer. The cost will be around \$1145 and the single sheet feed \$395 extra. And while on the subject of color, there are two color monitors - one for the IIe and one for the IIc. Cost of these is \$795.

For the Macintosh, there's the 20 Meg hard disk drive for \$3750.

Several other items have been released in the US, but are still unavailable locally. These include software to make the II screen resemble the Mac, comms hardware and a 1 Meg memory board for the IIe. I was told by David Roman, marketing manager at Apple Australia, the memory board should be available by Christmas.

## PLUS-WORKS for Appleworks

The PLUS-WORKS series of programs developed by Norwich Data Services Ltd

of New York is now available from their sole Australasian distributor, TECHFLOW.

This software modifies the Appleworks startup disk so that Appleworks will run on most Apple II computers and compatibles. Basic requirements are an 80 column card and 64K of RAM.

With suitable memory expansion card the PLUS-WORKS-XM version will expand Appleworks up to 1 megabyte and the data base to 4,200 records.

CP/M users with such cards as Starcard, Applicard, etc can extend their desktop to 72K with the XMP version.

PLUS-WORKS is priced at \$35.75, while the XM and XMP versions are priced at \$79.95.

Further information from TECHFLOW, PO Box 4, Woodford, Australia 2778, Telex AA 7133 TECFLO, Phone 047-58-6924.

## More Big Boards

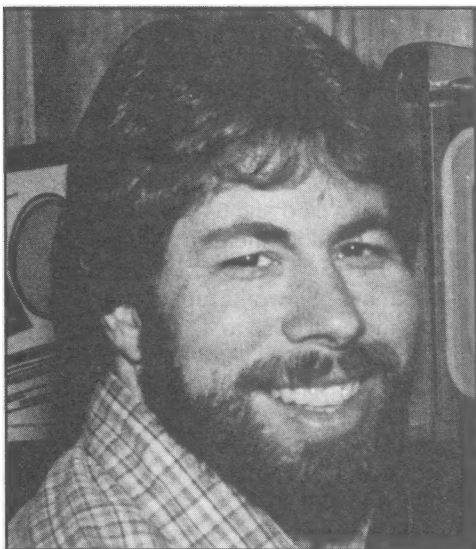
Someone out there with a 64K to 1Meg board already is A.T. National at Computer City, Hornsby, NSW - with a promise of a 2.5 Meg board by Christmas. There sure must be a lot of computer stuff due in December.

RAMWORKS, as this board made by Applied Engineering (US), is called, is compatible with DOS and ProDOS, the 1Meg version giving an BOOK desktop under AppleWorks. How do you store a file that size to the 5.25" disk? The software breaks up the file and fills disks, prompting you when to change. Whether the board will be compatible with the new BOOK drives remains to be seen.

Compatibility with Pascal, Visicalc and CP/M are also claimed, but I didn't witness these delights. However, the software with the board includes CP/M 4.0. Don't the versions escalate quickly? For at least 6 years it was CP/M 2.0, 2.2 and then 2.23. Now its CP/M 3.0 and 4.0 in the space of a few months. Amazing, though the software does not appear radically different from the predecessors except in the management of increased memory.

The cost of this board with a Meg should be around \$900. But there was a 5 year guarantee being spoken about,

## Bits and Bytes



Look who's endorsing AE products

and look who's endorsing the AE products.

Also available from A.T. National, is a board called Lis'ner 1000. This is a bit of hardware with heaps of potential though preciously little software.

Made by Micromint in the US and rating space in the July 1985 *inCider* magazine, the board gives the Apple II speech. OK, so you say what's new? Well, it does generate the best quality speech I have heard from an Apple (when not in its SAM emulation mode).

However, there is much more. The board actually understands spoken text. Selections can be made through a microphone - the user saying "RUN PROGRAM RETURN" and the computer going off and doing just that.

According to John Ng at A.T. National, the card can be used with wordprocessors, databases and in fact any program which is not copy protected. The reason here is that recognition routines and patches must reside on the same disk.

Before too many people get excited, the board does work but is very slow. Also, words need to be spoken in exactly the same way if the computer is not to become confused. And, with the sort of vocabulary useful for WP or DB, the card can be an ordeal. Unless the computer is being used by someone handicapped. In

this case, the board is a must for a look as voice is all that is needed to work the computer.

### Looking overseas

Couple of products worth a mention and some addresses. The first is a set of additional fonts for *MousePaint* on the IIs. For those who have parted with dollars for a mouse, this may increase the usefulness. The 12 new fonts in *Mousefont* are featured in the photograph and the software includes an editor to enable you to design your own. Price is \$US35.45 including postage, from Ashware, 805 Luz Court, Danville, CA 94526.

Micro Magic of Millersville MD are about to ship a 65816 interface board for the IIe. Yes, the 65816 is a 16 bit processor, but it uses a proprietary operating system to address up to 16Meg of RAM. Using a Mac to design and test computer circuitry? A program called *LogiMac* may be of some use. *LogiMac* draws the circuit and shows responses to a number of parameter changes such as different clock speeds and device delays. This means problems can be caught on the screen rather than when the circuits are actually wired.

The drawing size possible is 38 feet by 38 feet, and graphics can be passed to

*MacPaint* in one page segments for printing.

The software is priced at \$US59.95 and more information can be obtained from Capilano Computing Systems, PO Box 86971, Nth Vancouver, British Columbia, V7L 4P6, Canada.

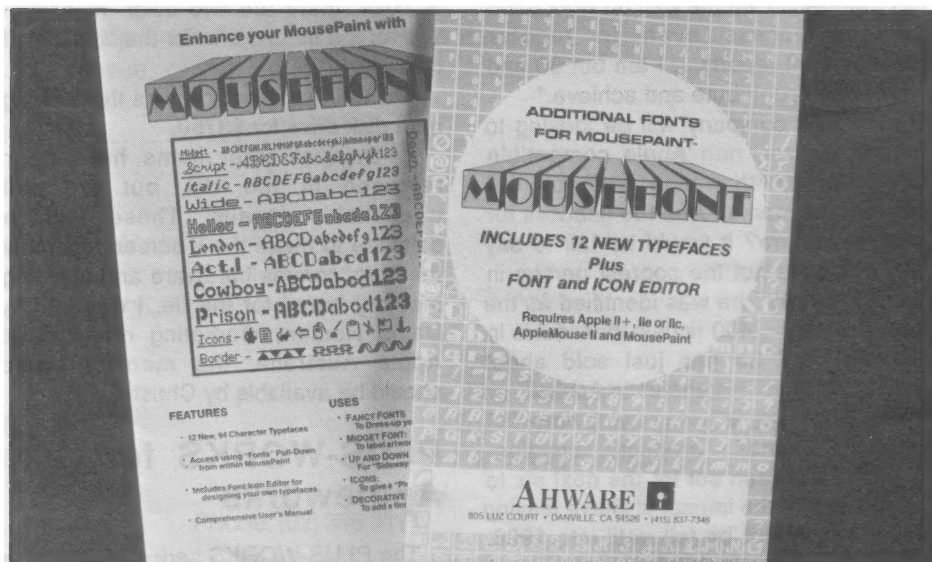
Please note that information such as this is gleaned from press releases and other sources. The information, by virtue of the distances involved, cannot be validated by the staff at *Australian Apple Review*. So, if you're interested send a letter inquiring rather than the dollars straight up.

### Digital Research to change GEM software

Digital Research will take immediate measures to make changes to its GEM computer programs to avoid Apple's claims that the programs violate Apple's copyrights.

GEM, which started shipping in April, is a portable operating system available for use on a number of computers, based on a graphics user interface which uses windows, drop down menus and icons.

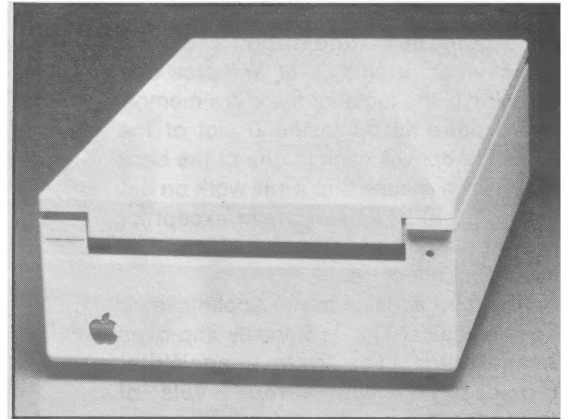
The specific programs to be modified are GEM Desktop, GEM Paint and GEM Draw. GEM Write will not be changed because there is no competition with the Apple product.





*Apple Unidisk 3.5" double-sided disk drive for the complete Apple II family*

# The new Apple improvements



## The Apple II is alive and well in Cupertino

NOW THAT THE new enhancements of the Apple line are public knowledge and are available at the shops we can stand back and see how Apple has improved the Apple line of computers overall.

The first major new is that the Apple II has been given a completely new lease of life as a business machine and as a computer for the advanced hobbyist.

The first big step is the introduction of the 800k 3.5 inch disk drive. This means that you are able to save about five times as much to a disk as you can with a standard drive.

Importantly, it does not mean the standard drive has become obsolete. It

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***'The first big step is the introduction of the 800k 3.5 inch disk drive'***

---

merely means that if you are using programs which involve storing a large amount of information to disk you will have the option of using one of these large capacity disk drives. It's going to be very useful for people who use the Apple II in business for spreadsheets and it is going to be equally useful for journalists who use the Apple as a working tool and need to save fairly large

lengthy articles to disk.

It's interesting this disk drive was released first on the Apple II. It follows as night follows day it will eventually be released on the Macintosh. It shows the new attitude that is abroad in Apple that they have chosen the Apple II - the machine on which the company's fortunes were built - to launch this brand new disk drive.

To go with this drive is a new optional memory board. This is a most remarkable achievement for you can have one megabyte of memory in an Apple II. True, the trick is achieved by bank switching but as the user will never notice this it makes the Apple II as good as - and in some ways better than - any of the 16 bit machines that are available on the market.

The good news also is AppleWorks is being adapted specifically to work with this board. This will mean that

anyone preparing a major report with a lot of spreadsheet figures, a lot of information from a database and a substantial amount of copy will be able to do it in one fell swoop without the disk being accessed except to load the program and information at the beginning of the session and save at the end. The effect on speed of operation will be quite miraculous.

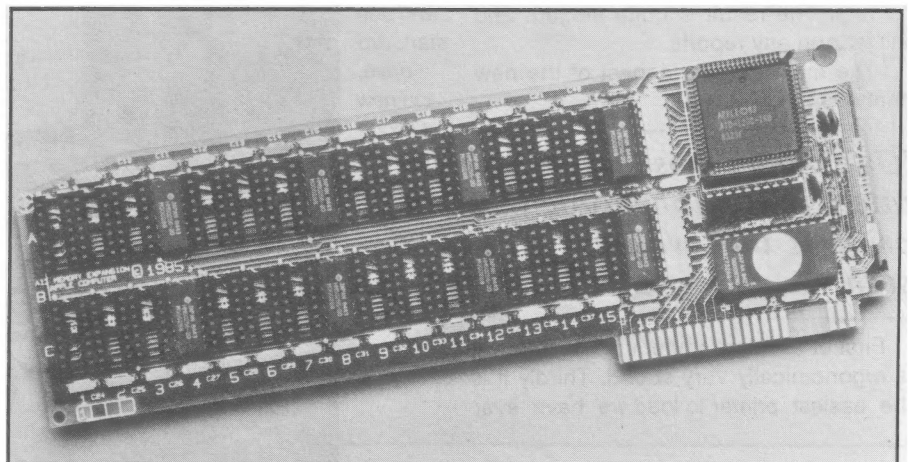
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***'The good news also is AppleWorks is being adapted specifically work with this board.'***

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The idea of having a Apple II with one megabyte at memory on the board and a disk drive that takes 800k on each disk would have seemed quite revolutionary only two or three years ago. Now, when you come to think of it, it appears to be a

*Memory Expansion Card provides an extra 256K of internal memory (RAM) for the Apple II, II+ or IIe, expandable to one megabyte by adding 256K chips to the card.*



## HARDWARE REVIEW

logical extension of the design of the Apple ][. Further underlining the management's dedication to the improvement of this great warhorse of a machine is the fact that the extra memory board does not fit in the 0 slot of the Apple ][e but will work in one of the back slots which means that it will work on any Apple ][ that has been made except for the Apple ][c which, of course, has closed architecture.

The third addition to the Apple ][ line is equally logical. This is a vastly improved ImageWriter. The new ImageWriter provides you with three levels of throughput.

One is very nearly Letter Quality, the second is perfectly acceptable and the third is called draft. This draft mode is infinitely superior to the draft mode which existed on the previous ImageWriter. With that machine the draft type used to come out in small letters with no relationship to the way it was laid out.

On the new machine, draft mode is the same as Near Letter Quality mode except for the fact that there are fewer dots. Close examination of the output seems to suggest that there is not enough

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***'With a multi colour ribbon, it will print out in several colours.'***

---

difference between the middle range and Near Letter Quality to make much difference. You can see the difference if you look very hard - but you really have to try.

The new ImageWriter will not only print out in black and white but, with a multi colour ribbon, will print out in several colours. The result is quite elegant and will jazz up any reports.

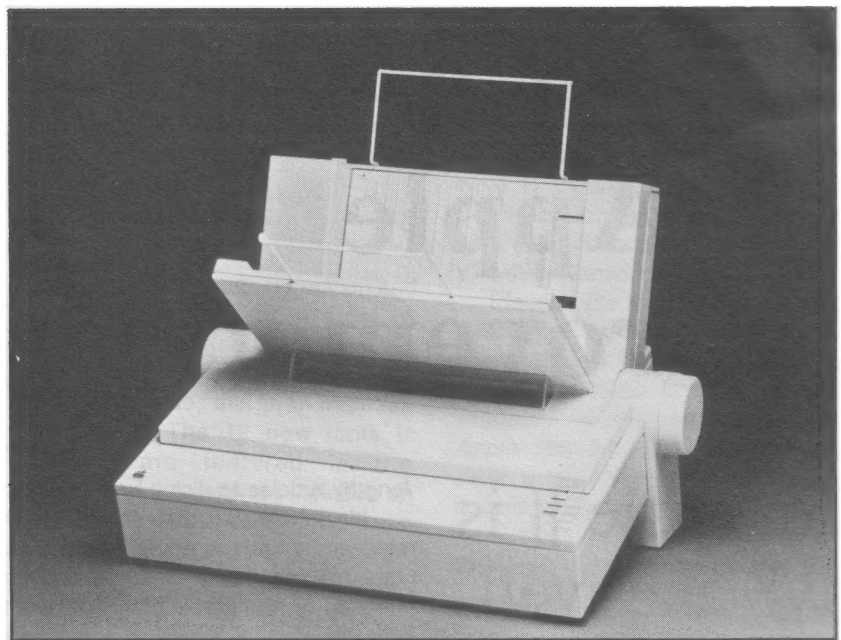
The most exciting aspect of the new printer is its design.

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***'One of the most intelligent innovations in printers that we have seen'***

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First of all it looks futuristic. Secondly it is ergonomically very sound. Thirdly it is the easiest printer to load we have ever



*The new Apple Imagewriter II printer, with the automatic single Sheetfeeder*

come across. You can run tractor feed paper through and yet you are still able to use single sheets or envelopes while the tractor paper is loaded. This feature originally appeared on the IBM ProWriter and is one of the most intelligent innovations in printers that we have seen in a long time. The Apple ][e with the extra memory, the vastly enlarged disc drive and the ImageWriter II has become a very serious professional machine.

Adding an extra touch is the new colour monitor. This is not RGB as you would

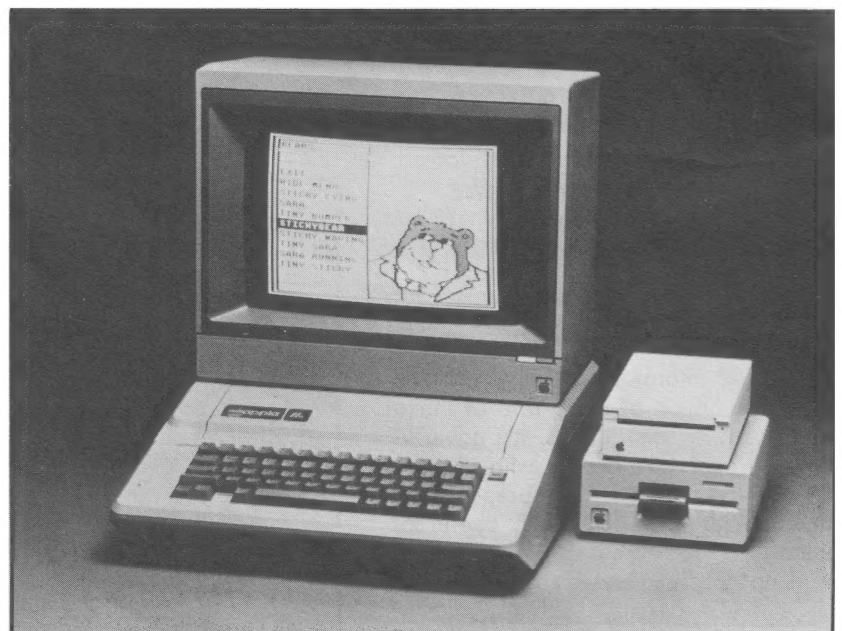
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***'Colour monitor which works on the American NTSC standard.'***

---

think. It is a colour monitor which works on the American NTSC standard. The most interesting thing about it is not its

*Apple IIe  
with one  
Unidisk  
3.5"  
drive  
and one  
standard  
drive,  
and new  
Colour-  
Monitor*





## HARDWARE REVIEW

quite splendid colour. It is the fact that in the monochrome mode it is perfectly capable of producing an image so sharp that writing in 80 columns is perfectly easy. This is the first monitor we have ever seen that will work in this way. Normally, if you have a colour monitor, you have to resign yourself to the fact that writing in 80 column mode will be, at best, an iffy proposition. Not now.

Many people might wonder whether, in fact, a colour monitor is an ideal addition to a business computer.

We think that it is self-evident colour monitors will become standard issue in most business situations in the very near future. We have just seen a survey carried out by one of the major banks which shows that over 80% of their customers are now using colour monitors for at least part of their operations. This is a trend that will undoubtedly continue.

These new updates have given the Apple II a totally new lease of life.

We expected that a new central processing unit would have been announced simultaneously but, given the time pressures to get something onto the market to show the direction the new Apple management was taking, it is not surprising that the 16 bit chip was put to one side. Whether it has been delayed or indefinitely postponed is another matter altogether. All we can do now is welcome the new additions to the Apple II for what they are - a wonderful step forward for one of the world's greatest computers.

It was strange to see the Macintosh take a back seat in the announcement of these updates.

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### **'Macintosh 20 megabyte hard disk from Apple'**

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The main Macintosh release was a 20 megabyte hard disk which is being sold by Apple. However, it is almost as if they were approaching it half heartedly. As Apple has made a transition to welcoming other suppliers as opposed to actively discouraging them they have found themselves in a peculiar position. They are launching a hard disk in competition to many of the manufacturers who they are trying to get on side. As a result the Apple hard disk is priced far higher than



*The Apple IIc with the 800K Apple Unidisk 3.5" and Apple Mouse II. The screen shows the main menu of the integrated wordprocessor/spreadsheet/database program, Appleworks*

the competition. Our guess is that Apple only expected to sell in relatively small quantities because most Macintosh buyers are going to settle for the built in HyperDrive which, originally, Apple intended to launch themselves.

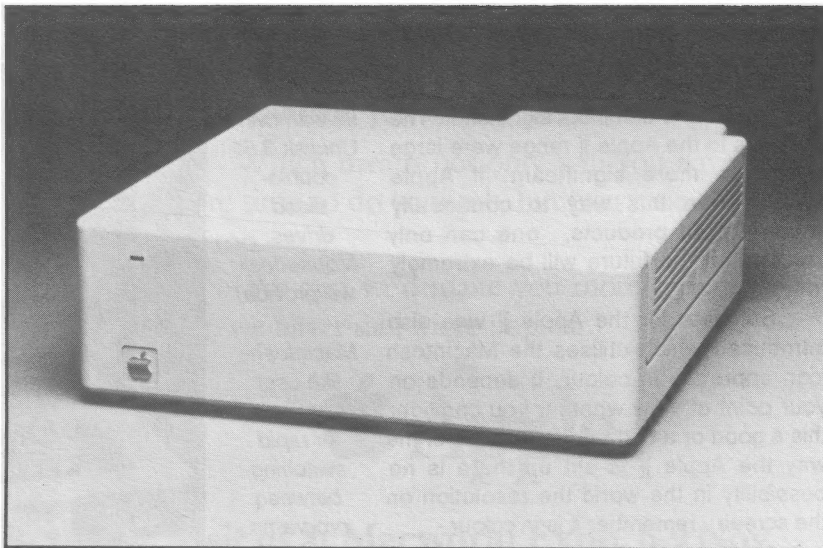
It doesn't really matter.

All that matters is the hard disk capability for the Macintosh has been

enhanced so that the Macintosh now becomes a very serious business machine indeed.

The news that James Hardie in Australia had issued a Macintosh to every single one of its executives came as no surprise to us. It appears, to our way of thinking, to be the ideal computer for the senior business executive.

*The Apple 20 megabyte personal Hard Disk 20 for the Macintosh 512K is designed to fit beneath the computer, plugged into the floppy disk port.*



## HARDWARE REVIEW

The new ImageWriter II printer will work very comfortably off the Macintosh but the obvious machine to go with it is the LaserWriter - currently the state of the art in printers.

We had expected to hear some fairly important announcements regarding the LaserWriter but appears they are now being held over till next January. The reason why we expected to see a major extension and improvement announced is there are two megabytes of Random Access Memory on the LaserWriter which are hardly being used. At the moment the machine is only idling along with tons of power in reserve.

Plainly, it could be loaded with many more type fonts than the four it currently boasts. Equally plainly it could have what would be, in effect, a print spooling buffer built in, so that there would be no delay in waiting for the LaserWriter to operate before the Macintosh returned to user control.

Look to see such improvements happening early in the New Year. At the same time expect to see the Macintosh

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***'If Apple continues in this way to continually improve both products, one can only predict that the future will be extremely rosy.'***

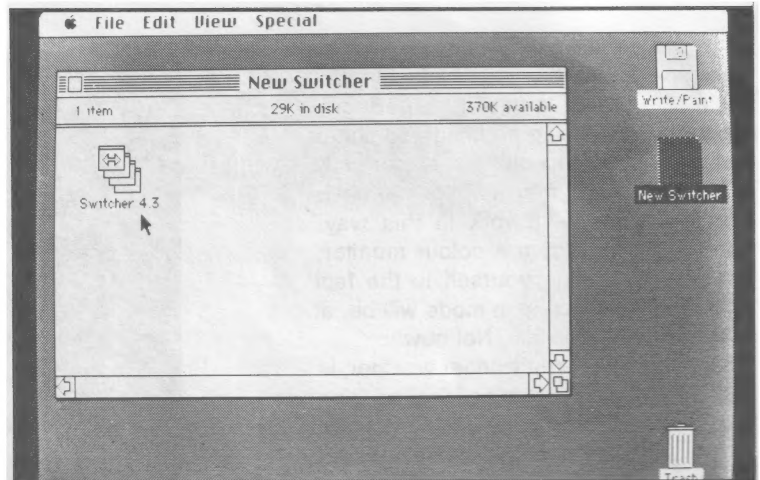
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memory increased to an optional two megabytes and the 68000 chip up graded to a 68020 chip which is a true 32 bit/32 bit chip.

The additions announced for the Macintosh were small but significant. The additions to the Apple ][ range were large and even more significant. If Apple continues in this way to continually improve both products, one can only predict that the future will be extremely rosy.

Software for the Apple ][ was also introduced which utilises the Macintosh icon approach in colour. It depends on your point of view whether you consider this a good or a bad thing. Because of the way the Apple ][ is set up there is no possibility in the world the resolution on the screen - remember it is in colour -

*New Switcher, the program selector package for the 512K Macintosh, allows users to cut and paste data between different programs*



could even approach the Macintosh. Equally, people who have been brought up with the Apple ][ will be far more comfortable staying with standard operating procedures rather than using icons and a mouse. But for people who are buying an Apple for the first the icons will be extremely attractive. They are clean, clear, clever and simple to use. First time users could ask for little more.

And that is the new line up from Apple. They are all straight logical improvements to a line which was already on the front edge of computer development. They are all worthwhile enhancements.

Nevertheless, we feel that this series of improvements was announced at this time so that Apple management could show by deeds rather than words they were backing the Apple ][ and that they were improving the product line right across the board.

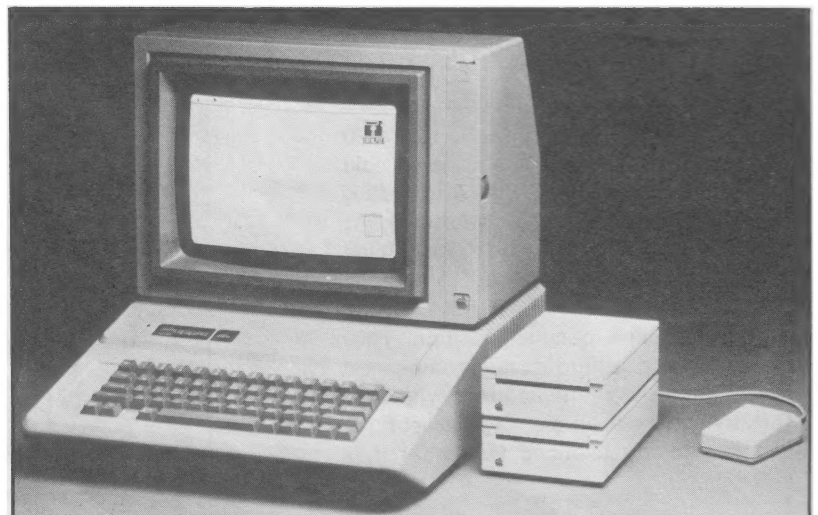
In our opinion, the most important

announcements are going to come in the first week of January next year when Apple holds its Annual General Meeting. This is the time when Apple traditionally releases several brand new goodies. It will be most interesting to see then what happens then. The Macintosh will at that time be meeting the Amiga from Commodore and the Atari from Jack Tramiel in head on competition. All three machines use the same chip and they all three will take very similar programs. But the Commodore Amiga and the Atari Jackintosh are in full colour - and glorious colour at that.

If the Macintosh is going to beat them in the market place then the Macintosh is going to have to have colour, it is going to have to have a larger internal memory, it is going to have to have an improved sound system.

Our guess is that all of those things will come to pass. Read about it in our February issue.

*The Apple IIe with twin Unidisk 3.5" double-sided drives. Mousedesk will provide a Macintosh-like user interface for rapid switching between programs.*





# WORKAHOLICS REJOICE. NOW YOU CAN DO EVERYBODY'S JOB.

There are now more than 550 software programs available for the Macintosh computer.

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Thanks to Macintosh's windows, icons, pull-down menus and mouse technology, every Macintosh program works the same way. Learn one, and you've learned them all.

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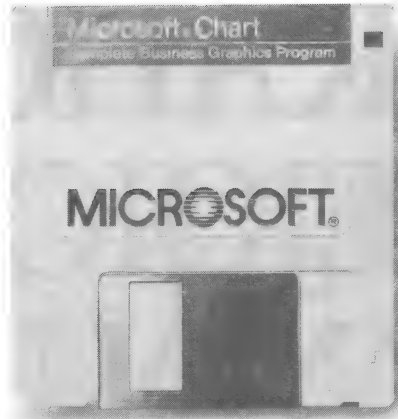
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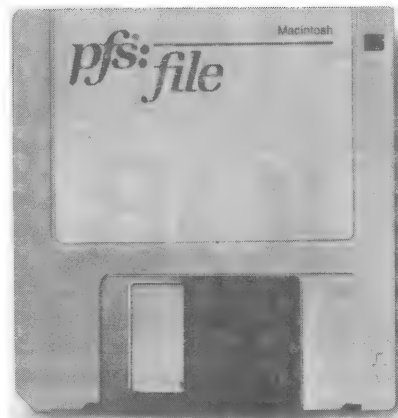
**Microsoft Chart.** 42 different charts and graphs for presentations, sales reports and transparencies.



**MacBusiness.** Gain overall financial control of your small business with this integrated, intuitive accounting program.



**Omni 3** by Blyth Software. Single or multi-user data base manager featuring multiple file management and user definable menus.



**PFS:File.** Store and retrieve mailing lists, client records, collections, schedules and inventories.



**MacProject.** Create complex "critical path" flow production schedules, timelines and manage 277



**ThinkTank 512.** An idea processor to organise projects, manage details, outline ideas and support decisions.



**Microsoft Multiplan.** Electronic spreadsheet for budget forecasting, business planning and "what if" analysis.



**PageMaker** by Aldus. Design newsletters, brochures, training manuals, presentations and more.



**Microsoft Word.** Full feature word processor for memos, personalised form letters, reports or any professional document.



**Filevision.** Visualise market trends, organise and track sales and present data in pictures.



**MacVideotex.** Access stock market, home banking, travel and other information via Telecom's Viatel videotex service.



# The Macintosh and the LaserWriter get it together

by Gareth Powell

AS A COMPANY we have probably had more experience with using the Mac and the LaserWriter as a publishing/layout/typesetting tool than anyone else in Australia. Simply because we were the first cab off the rank and were actually using the set-up before it was officially released in the United States, leave alone Australia. As we have had more enquiries on this aspect of the Macintosh than any other, what follows is a guide to using the Macintosh as a typesetting tool and a design and a layout device.

*'We can say, with some accuracy, that you need half a megabyte on board if you are going to work at any speed'*

When we were first able to link our Macintosh to a LaserWriter we already had a fat Mac, so that working memory was not a great difficulty. However, having discussed the situation with several other publishers we can say, with some accuracy, that you need half a megabyte on board if you are going to work at any speed and a second disk drive will make life a lot easier for all concerned.

## MacPublisher

The first program to become available for designing pages on the Macintosh was the ill-fated *MacPublisher*. This was imported by Greg Lister of Software Source, and we all quickly found out about its deficiencies. This was, you understand, Version 1.0 and the word is

that a highly improved version will shortly be with us.

However, the first version simply didn't work well enough, fast enough or easily enough to make it viable. True, the Mac-crazed William Bullock managed to produce some newsletters - but they were, in truth, poor pathetic things which a schoolchild would have rejected out of hand. It was sad *MacPublisher* was such a poor program. It is possible it was rushed out at too great a speed to meet the demands of programs for the new LaserWriter. We look forward with great interest to testing later versions.

## Ready Set Go

The second program that came out that we were able to use for designing pages was *RSG* - which stands for *Ready Set Go*. Although the version that we have tested and still use has several bugs in it, it is nevertheless a tremendous step

*A picture transferred into Ready Set Go from MacPaint*



forward from *MacPublisher*.

The basis on which it works is relatively simple.

You set up text blocks where you want them to appear on the page and then you drop in the text from memory where you have placed it, either from *MacWrite* or one of the other word processing programs. *RSG* works remarkably well in this area and operates within limits of a thousandth of an inch - that is far greater accuracy than ever used to be achieved by the old time craftsmen. But the program does have some problems.

*Samples of type faces you can use with Ready Set Go and the LaserWriter:  
(Almost any size can be used, in plain, bold, italic, outline, shadowed etc.)*

Helvetica 12 point plain

Helvetica 7 point plain

Helvetica 18 point shadow

Helvetica 24 point bold

Times 18 point outline

*Times 16 point italic bold*

Times 32 point bold

Monaco 10 point plain

The first is that unless you use the two types which are normally installed within the LaserWriter - Times and Helvetica - the spacing shown on the types you use will possibly be very strange indeed. (It is true there are two other typefaces on the LaserWriter but, in practical fact, one looks like a typewriter and the other is basically for scientific and mathematical work. They are not, however, relevant as

## *'The minor bugs in RSG can get somewhat annoying.'*

far as layout and design are concerned). This problem probably has more to do with the design of the LaserWriter than with RSG but the net, net result can be most frustrating.

The minor bugs in RSG can also get somewhat annoying.

For example, correcting text once it has been placed onto an RSG page is not a job for the impatient. Especially if the correction has to come in the last line of a paragraph. Then the cursor does not accurately show where the type will be inserted or where a change will take place. You have to make a guess at it and then go forward by trial and error. Normally the cursor is at least six spaces ahead of where a change may happen. This can drive you quietly mad if you have a lot of corrections to do. It is far better to do the corrections in MacWrite before you transfer the copy across than to wait until it is in RSG and then start to do the corrections.

Another problem is that you cannot set type around a block containing a picture. There is obviously some deep-seated bug in the program that will not let you do this. Every time we have attempted it we have ended up with one line very much longer than all the others. Why, we know not. But you can create another text block of a narrower size to put next to the picture.

RSG can be made infinitely more flexible and powerful by changing some of the desk accessories on the program.

The two key additions are ArtThief and MockWrite. Because the programs are built into the accessories, you can drop down into MockWrite to pick up any copy

that you need to lay down on an RSG page. This saves you having to exit RSG and start up MacWrite. Which saves a considerable amount of time.

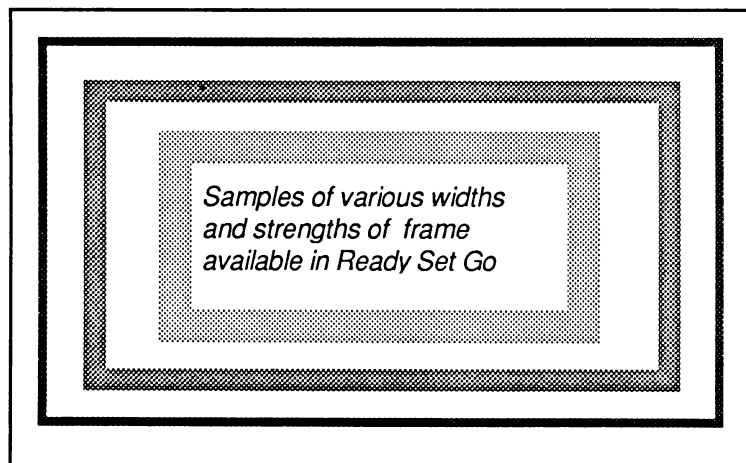
## *'RSG can be made infinitely more flexible and powerful by changing some of the desk accessories on the program.'*

With ArtThief you can take pictures from a file built up with MacPaint and paste then into RSG without ever having

to leave the program. This is a great saving in time and effort.

By using both of those desk accessories together it is perfectly feasible to make up an RSG page in one go without once having to exit the program. As you gain experience you get much faster and learn how to work your way around bugs that are still in the program. The program can be much improved. And it is going to be.

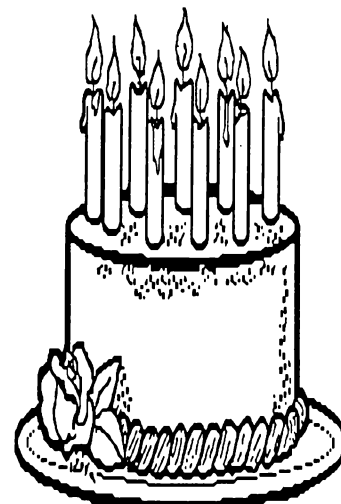
According to the word from America there is a new version of RSG about to be released which fixes up all bugs which existed in the original version. That is not to say that the original version is not perfectly useable. It is. But some of the



Text can be made to fit next to a picture by putting it into a narrow text block.

This makes it more difficult to justify, however, and hyphens will be needed.

*When you paste down a picture from MacPaint, you can make it larger or smaller, and also short and fat or long and thin, by dragging the corner with the mouse.*



*continued on page 14*

# Businessmen & Hackers finally see eye to eye on printers.

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There is so much more to the Epson GX-80 and LX-80 that you won't find on other low-cost printers.

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bugs do get somewhat annoying. This particular issue of *Australian Apple Review* is, in fact, made up mainly on RSG with some of the pages made up by another program which we will discuss in a moment. It is almost impossible to tell the difference.

## Aldus PageMaker

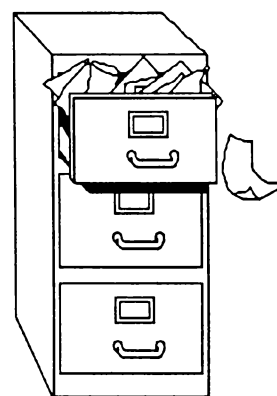
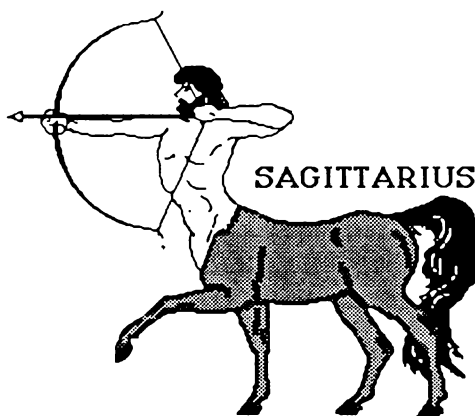
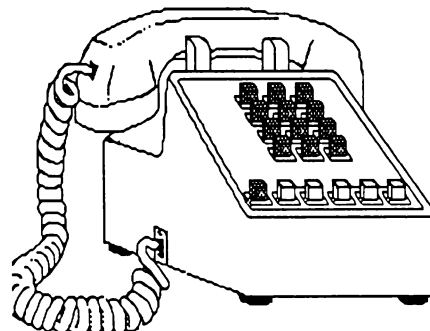
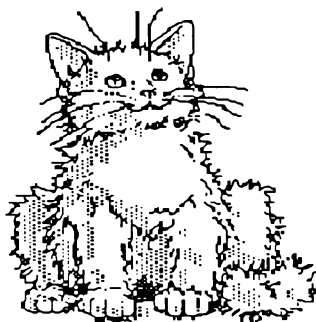
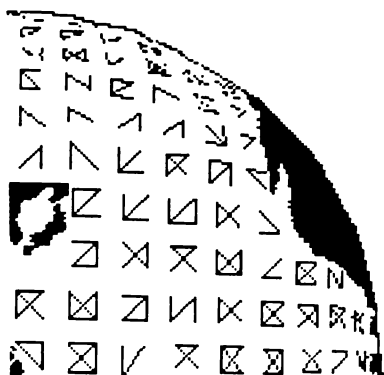
The other program is *Aldus PageMaker* which is definitely the state of the art at the moment. This program has obviously been written by software experts who are also heavily into publishing. It has on it almost everything a publisher would ever require except for one strange and notable exception. There is no algorithm in the program to smooth illustrations.

Such an algorithm exists in RSG - and a very elegant piece of programming it is. It means that anytime you pull a drawing out of *MacPaint* and print it through the LaserWriter the end result is infinitely better than the one you had on your screen.

***'Aldus PageMaker has on it almost everything a publisher would ever require except for one strange and notable exception.'***

*PageMaker* does not have this facility and it is very difficult to understand why it was not included. Version 1.2 which is

*The result of no smoothing algorithm in Pagemaker:*



apparently to be released Real Soon Now has this omission rectified.

There are far more facilities on the *Aldus PageMaker* than there are on RSG. This flexibility and power is reflected on its price which is very nearly \$1,000. It is a program which will only be attractive to publishers who are very seriously into producing pamphlets, books, catalogues etc using the Macintosh and the LaserWriter. It obviously is not for the happy home hacker.

As new versions of all three programs are going to be released in the near future many of the small problems associated with the current versions will disappear. Its also fairly probable there will be some quite dramatic new development.

These will not so much go towards improving the accuracy of the layout - when you are working to a thousandth of an inch there is not much improvement possible - but will be more connected with the speed in with which the programs can be used.

As this article is written, the speed merchant is *Aldus PageMaker*. It

achieves its speed by allowing you to access the text directly from the page you are making up without having to leave the program to use a steppingstone like *MockWrite*. It also allows you to go to a *MacPaint* file and take the picture and crop it to size and place it exactly where you want.

However, it does not have a subroutine built in for smoothing the edges of the drawing. At the moment it is better to use *MacPaint* to produce the illustrations and then physically stick them down on the layout. Which is not the point of the exercise at all.

The end result of these programs matched with the LaserWriter is that magazines up to a given standard - say the standard of the *Australian Apple Review* - can be made up by relatively unskilled labour, for example the publisher of this magazine. The savings in time and expense are quite remarkable.

The *Australian Apple Review* would normally cost about \$600 to typeset. The cost of layout would be between \$500

and \$1,000. Which means that every issue we make up using the Macintosh and the LaserWriter we save about \$1,200 to \$1,500. As we produce two different magazines a month - and we are shortly to add a third - it is only a matter of a very short period of time before we earn our money back on the machinery and the software.

The speed at which we use the programs improves by the day. A reasonably adept operator should be able to turn out a minimum of ten pages a day and a maximum of about twenty.

Pretty fast but perfectly possible.

Which means that with a normal magazine you can guarantee to produce it in less than five working

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*"Which makes the Macintosh and the LaserWriter one of the best investments on the Australian market today."*

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days. Which is a lot faster than sending copy out for typesetting and then for layout by an artist - no matter how fast that artist might be.

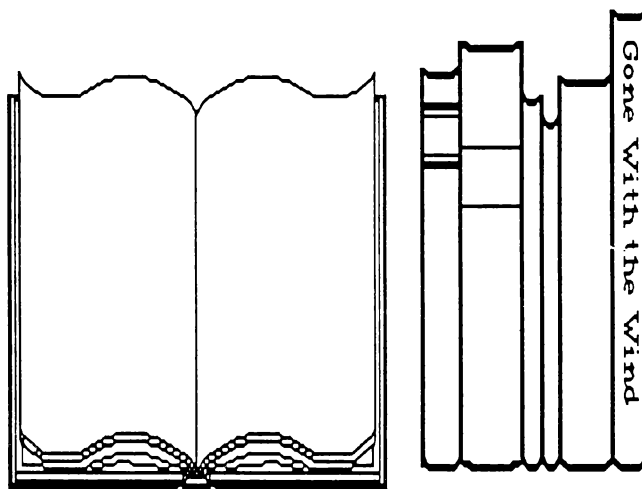
On our figures we should be able to totally cover the cost of all hardware and software in something around fourteen months. Which makes the Macintosh and the LaserWriter one of the best investments on the Australian market today.

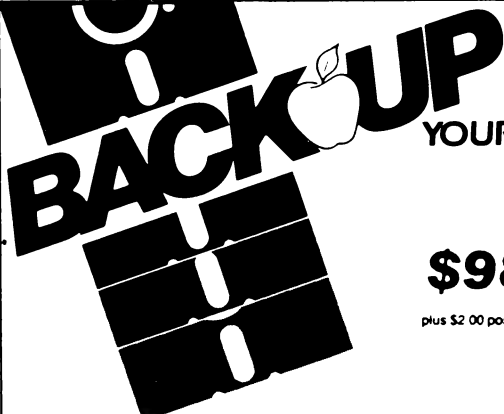
As this scene is changing very rapidly we will do an update on this article from time to time to let you know what is happening.

One of the inherent restrictions in the LaserWriter is the size of the paper which can be printed - normally foolscap - and the number of dots per square inch. The LaserWriter is built to work at three hundred dots per linear inch. Most high quality type setting machines run at nearer one thousand dots per linear inch.

If you want to get high quality with the LaserWriter it is possible to lay out the pages at double the size and then reduce them using a reducing photocopier. That gives you a resolution which is the equivalent of six hundred dots per linear inch. Which is very close to good quality type setting.

We stay at three hundred dots per linear inch because this magazine is about giving information rather than winning fine arts awards. But we can push it up to six hundred dots and - by doing a double a reduction - get it to one thousand two hundred dots. We are experimenting in this area in order to produce high quality art work for a glossy magazine. We will let you know what happens at a later stage.





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# How to check for repeats in your dBase List

by Gene Stephan

This month the problem to tackle is the inadvertently duplicated record. Or putting it another way, how can you tell if you have entered a record twice if your database is already of monstrous proportions?

At face value the problem is large and appears intricate as unfortunately in *dBase* there's no command "DISPLAY REPEATS" or similar. The solution is simple, but your computer will spend a little time running. To analyse the problem take the mail list in figure 1. as example.

```
STRUCTURE FOR FILE:  MLIST.DBF
NUMBER OF RECORDS:  19624
DATE OF LAST UPDATE: 00/00/00
PRIMARY USE DATABASE
FLD  NAME      TYPE WIDTH DEC
001  FIRST     C   020
002  LAST      C   020
003  ADDRESS   C   030
004  SUBURB    C   020
005  PCODE     C   004
** TOTAL **           00095
```

To print out the entire list, sit down and physically look for repeats is not my cup of tea. I think few people would be amused if faced with the prospect and would probably not worry that some on the list would receive more than one mailing.

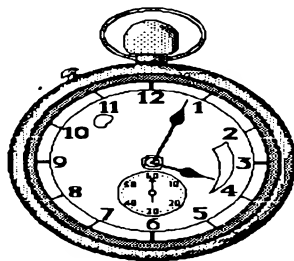
So, the first thing to do is to establish a criteria of 'uniqueness'. Names alone are surprisingly not a good choice as in a list of several thousand, there may be more than one J. Smith or A. Jones. A combination of fields such as name and address is necessary. This gives the clue as to the first step. The list must be INDEXed on LAST.

Once this is done, each pair of records must be compared for similarity. Immediately some limitations should be

obvious. The major one is that the typist will need to have been very accurate as the comparison is rigid. One letter more or less in the name or the address and there will be no match. However, the beauty of *dBase* is such that usually there is more than one solution to any problem.

The degree of accuracy is determined by the level of sorting. Experiment. A less stringent comparison would be to INDEX ON LAST+PCODE TO LNAME, and STORE LAST TO ADD1 and ADD2. This would flag all people with the same last name living in the same suburb. Although the number to check may increase, you would be dealing with fields where less human error should occur.

The following code expects a two drive system (at least) and the data disk to reside in B:



```
*
* set the screen and file ready to go
*
SET TALK OFF
ERASE
?
? ' Working'
?
USE B:MLIST
INDEX ON LAST TO LNAME
GOTO TOP
*
* where to send output
* ACCEPT 'Send output to the printer
(y/n)? ' TO ANSWER
?
IF !(ANSWER)= 'Y'
SET PRINT
```

```
ON
ENDIF
*
* start work
*
DO WHILE .NOT. EOF
STORE ADDRESS TO ADD1
SKIP 1
*
```

```
* check for end of file
*
```

```
IF .NOT. EOF
STORE ADDRESS TO ADD2
ENDIF
*
*
* do the compare
* and if they match display
* the record numbers
* alternatively, here any part
* of the record can be displayed
*
```

```
IF !(ADD1)=!(ADD2)
SKIP -1
? 'CHECK RECORD #'
? #
SKIP 1
? 'AGAINST RECORD #'
? #
? '-----'
?
?
ENDIF
```

```
* clear ADD2
*
```

```
STORE '' TO ADD2
*
```

```
* and finish
* ENDDO
```

For those unfamiliar with the *dBase* editor, Moving through code written is done with the same cursor control keys as in *WordStar*, only that it is in 'insert off' mode by default.

```
^E = cursor up a line
^S = cursor left one character
^D = cursor right one character
^X = cursor down a line
^V = insert on/off toggle
^N = gives a blank line
^G = delete character when insert on
```

Finally, *dBase* uses the '\*' as a REM line - everything after it, up to the RETURN is ignored in program execution. When keying in the above code, these lines can be omitted.



# Mouse Calc™



## How to make your spreadsheet play?



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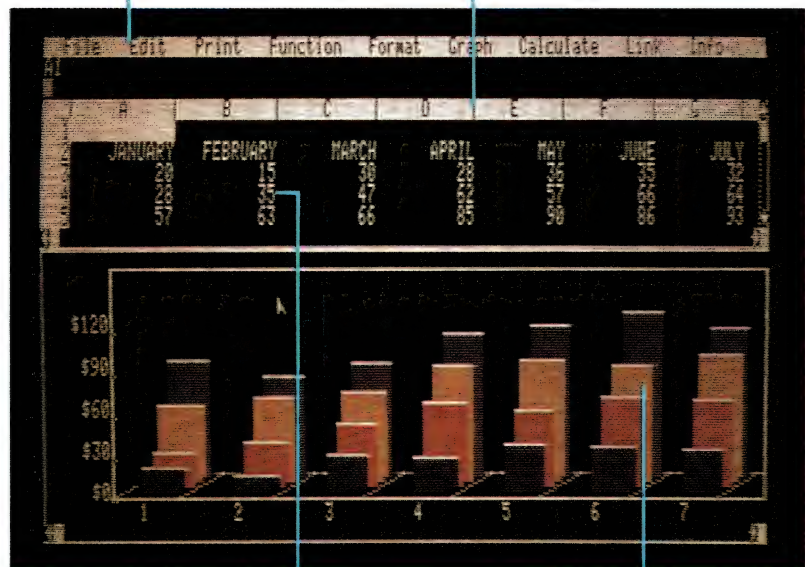
■ With Mouse Calc, you're able to project sales, look at forecasts or even arrange a home budget... within minutes. Simple pull-down menus eliminate the need for complex commands.

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**Crisp color display** really highlights your spreadsheet data. By changing a number on the spreadsheet, you automatically change the graph as well.

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## DARK STAR - from a dim beginning to a bright future

by Gareth Powell

It must have been in the late seventies. I was in England on a visit and read advertisements for a new type of card for the Apple called a *Snapshot*. The advertisement said it was produced by a company, Dark Star Systems, in Greenford in Middlesex. I wanted to learn more about this card which was designed to give you a quick copy of any program. So I phoned up Dark Star and was answered by a lady who said, "He's not up yet, dear. Try phoning nearer lunch."

*'Since then, Dark Star Systems has gone upwards and onwards.'*

I called back about a week later and spoke to the managing director's friend and assistant named, from memory, Sheila. She said he had gone to America to discuss the sale of the card and that she was busy with an eraser rubbing out the numbers from the top of chips to stop the board being pirated. Five weeks after this I saw a copy of the card on sale in Hong Kong which shows that her efforts with the eraser left something to be desired. In fact, an exercise in futility.

Since then, Dark Star Systems has gone upwards and onwards. They now have a Sales Manager. They have also continued to expand and enhance the card.

Using the original card was something of a hassle. It was much easier if you kept the cover off the computer so that you could get at an interrupt switch on the card.

The first improvement was the addition of a switch on a cable, not unlike the remote control button on early cameras.

We have one of the newer *Snapshot*

cards in the office installed in the Ile and it is useful for far more than its originally stated purpose.

When the card was initially launched it was sold specifically as a means of breaking protected programs.

*'it could stop a program in full flood - freeze it on a frame'*

And there was no doubt whatsoever it would make copies of what had been previously totally uncopyable programs. The only problem was, in the early days, the copies of the programs used to fall over with monotonous regularity. For example, the card would never make a satisfactory copy of Zardax and had great difficulties with anything even remotely sophisticated.

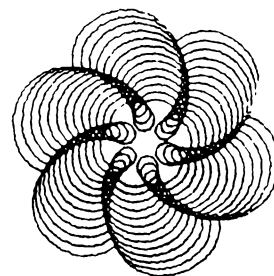
Yet it had its uses.

One of its best facilities was it could stop a program in full flood - freeze it on a frame - so that you could examine the program, save where you had got to and leave the machine to handle a telephone call or some other interruption.

Then Dark Star Systems started adding other modules to its basic card. Now the *Snapshot* card has the ability to

*'the ability to interrupt, copy, and resume any memory-resident program'*

interrupt, copy, and resume any memory-resident program. There are enhancement software packages available including a *Shuttle* program for multitasking, a *Shell* for writing interrupt



and resume machine code programs as well as the original Copykit for copying and debugging programs.

The latest addition to the extensive library is *Printinterrupt*. This allows you to dump any screen from your computer into your printer.

There are several programs already in existence which allow you to do this. We've published one in the *Australian Apple Review*. But the *Printinterrupt* program allows you to dump and then resume the program exactly where you stopped. At the same time it allows you to change the way the screen is printed out to make it more readable when it comes off the printer. You can choose the density, the shade of the background and you can even use a series of logic statements when you print out the HiRes graphic screens - pages one and two on your Apple - together in a variety of special effects.

The great virtue of this new program is that it is totally menu driven and extremely easy to use.

It also has the added virtue of being easy to configure for almost any eighty column card, printer card and printer combinations.

*'The great virtue of Printinterrupt is that it is totally menu driven and extremely easy to use'*

When printing from the HiRes screen you are offered three facilities XOR, OR, and And. These are logical terms used in electronics although they sound like the basis for a quiz.

To understand what follows you need to think logically, in the academic sense.

The XOR function causes a dot to appear on the printout when either one or

other of the dots being superimposed from the two HiRes screens is black. However, when both are black no dot is made by the printer. The end result is the two HiRes screens are superimposed on each other with no loss of detail.

If you select the OR function a dot is printed by the printer when either or both of the superimposed dots is black and the results are the solid figures on either

---

***'With the AND function you get an effect which might have been created by Salvador Dali'***

---

HiRes screen conceals the pattern on the other HiRes screen.

With the AND function you get an effect which might have been created by Salvador Dali. The printer then only produces a black dot when there is a black dot on both pages. The result is interesting to say the least.

The program has four eighty column cards that you can select from, 23 different types of printer cards and 27 types of printers. It almost certain that any combination you can think of is covered here. If not, the technical staff at Dark Star appear to be more than willing to work out a modification on the program for you.

---

***'The program has four 80 column cards that you can select from, 23 different types of printer cards and 27 types of printers.'***

---

This is by far and away the best printer dump program on the market. Particularly because it is so easy to use, so powerful, and produces such fascinating results under total control.

To check that nothing has changed I telephoned Dark Star on 01 900 0104 from Australia at 3.45 am our time (no

one will ever know the sacrifices I make for this magazine). I expected to be told the Managing Director was still in his bed.

Not so.

They now have a complete technical department, and I spoke to the Technical Director, an American called Robert Sather. Thus does the computer revolution move on.

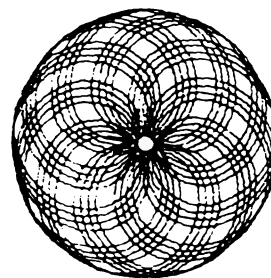
I had two reasons for calling. One was to see that they were up, bright eyed and bushy tailed, and the second was to find out who their Australian distributor was.

The board used to be distributed by Michael Suss from Melbourne but he no longer appears to be handling it.

We have therefore arranged a distributorship and, by the time you read this, it should be available by mail order from:

International Solutions Pty Ltd, PO Box 207, Broadway, NSW 2007. Phone (02) 319 1488.

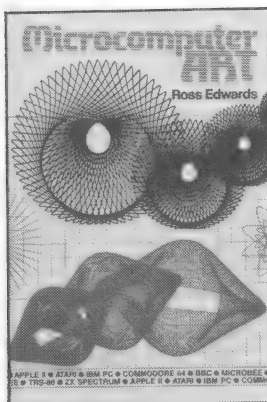
Drop them a line for the latest information.



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*by Ross Edwards*

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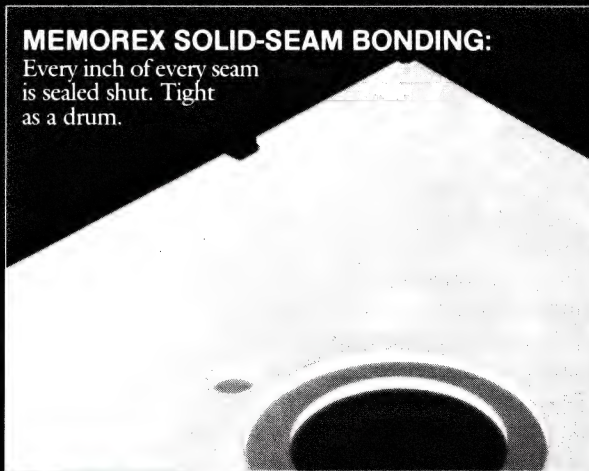
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# MEMOREX

## "Wee, sleekit, cowrin', tim'rous beastie"

# The mouse - is it worth its weight in gold?

by Duncan McCann

AS WE HAVE HAD more queries about the mouse than any other piece of Apple machinery, the time has come to put all of our prejudices aside and look at the contrivance and see whether it, as is frequently alleged, is worth its weight in gold.

The mouse first saw light of day at the Palo Alto Research Centre where its birth was midwifed by Xerox - that fountain from which many of the good things in computing have flowed. It was intended to make computers more user friendly. In its original form it had two buttons.

When Apple announced it for the Macintosh the shape had changed somewhat and, instead of two buttons, there was one. The mouse fits neatly in

*'Where the mouse comes into its own is in managing graphics programs.'*

the palm of the hand and underneath a large black rubber ball gets traction, hopefully, from the desk surface and, in turn, rotates sensors so the movement of the mouse can be reflected in the computer and on the screen. After it was introduced on the Macintosh a version was introduced for the Apple IIe.

There is a fundamental difference between these two machines which must be clearly understood. You can use the Apple IIe without a mouse. You cannot use the Macintosh without a mouse - if you are mouseless you are also helpless.

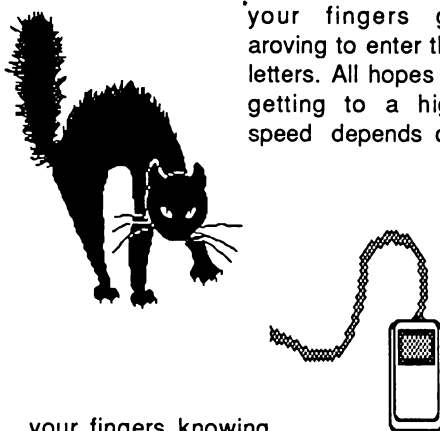
Where the mouse comes into its own is in managing graphics programs. A sweep of the wrist and a curved line soars across the screen. A brisk pull of the mouse towards you and you have a straight vertical line. Works just like magic. In this it is superior to the KoalaPad and almost any other digitizer we have ever seen.

The mouse is also very handy for

pointing at icons and starting programs up. On the Macintosh this becomes a reflex action and manipulating the desk top with its numerous icons becomes so engrained that the eyes see and the mouse moves simultaneously with no apparent instructions going from the brain to the wrist between times. Magic.

Where the mouse is less than totally felicitous is in wordprocessing and spreadsheet programs. There are good and proper reasons for this. If you are a touch typist of any speed whatsoever you depend totally on your fingers resting on what are known as the home keys - adfg for the left hand, jkl; for the right. It is from this base position that

your fingers go stroving to enter the letters. All hopes of getting to a high speed depends on



your fingers knowing where they are at any

time in a sort of reflex action. This may sound somewhat amusing, but it is the basis on which all touch typing - the other kind, "hunt and peck" is hardly worthy of consideration - depends.

It is fine when you are entering text because you just blast away. The problem arises when you are correcting. If you want to correct you have to take your hands off the keys and grab the mouse. Move the arrow until it finds the precise spot for the correction. Let go of the mouse. Place the hands back on the keyboard in the precise position of the home keys. Tap in the correction. Read the copy until you find the next spot. Remove your hands from the keyboard to grab the mouse. And so on.

There is no way in the world this can

ever easily become a reflex action. The result is that the smooth flow of your work is interrupted. And, odd but true, if you are over forty you become seasick with the effort of focussing on the screen, refocussing on the keyboard, focussing on the screen. With spreadsheets the problem is even worse. The number pad on the Macintosh is traditionally placed on the right hand side of the keyboard - if you are entering a lot of figures the extra numerical keyboard is vitally essential - which is also the hand that uses the mouse. You move the pointer to a intersection of the screen. You release the mouse and enter the figures which are appropriate. Then take your hand off the keyboard and grab the mouse again. And so on.

This process can be improved by switching the numerical keypad to the left hand side of the Macintosh and training your left hand to work the numbers - which is what most bookkeepers do. But if the instructions on either a wordprocessing program or a spreadsheet are all coming from the keyboard then your hands remain firmly on the home keys, your eyes gaze at the screen and your speed of input, on our rough measurements, improves by 20%.

The answer to this problem is to allow users to make a free choice. This is exactly what MicroSoft have done with their wordprocessing package which has become our program of choice simply because of this facility. Sadly, the number of programs which can be used in a mouseless mode on the Macintosh can be counted on the fingers of one mouseless hand.

In truth, the mouse is an excellent idea for most people on many programs. But it is not ideal for all people on all programs. There is a turbo Trak Ball - or some such silly damn name - which is sold in Australia at a quite horrendous price. We have never had the opportunity to test it but our understanding is that it leaves the user's fingers firmly on the home keys - which is how it should be.

It is not that we have anything against mice. We just wouldn't want one to move into the neighbourhood.



# MasterChart!

a new business graphics package

reviewed by Gene Stephan

Supplied: 12 page manual,  
disk.

Requirements: DOS 3.3 on a  
II+, IIe or IIc and 48K

Cost: \$78.95

Available: Spectral Graphics  
Software, PO Box 134,  
Beenleigh, 4207.

Business graphics packages have been around for many years. My trusty copy of *Appleplot* was pressed into service at least five or six years ago, and over the years, I must say I've tried at least a dozen.

One good thing about there being so many similar products is that it allows an accurate comparison. One bad thing is that the more programs you see, the more you begin to believe that the perfect program is unattainable. Each has merits, but somehow all the merits don't end up in the same disk.

For example, *Apple Business Graphics* is thorough but quite difficult to use. *VisiPlot* can read *Visicalc* data but is limited in graphics capabilities. *Appleplot* can be copied and modified, but by today's standards doesn't produce graphs of professional quality. *PFS Graph*, well, the original I had would boot about twice out of every five tries. And then there are *AlphaPlot*, *SI Superplotter*, *Scientific Plotter* and so on. All with good points, and all with some bad.

*MasterChart!* is no exception, but is one of the best packages I have seen.

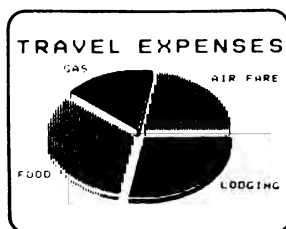
Firstly, the quality of the graphs produced is excellent. Two dimensional

and three dimensional effects mean the graphs are visually pleasing and professional in appearance. They could easily be used in publications, for slide making with the Polaroid hardware attachment, or for viewing on the

## "One of the best packages I have seen"

computer. The package in fact includes the software to make up and display a "slide show" on the Apple. The show can be user controlled or automatic, so an Apple can be set up to continually display graphics, not necessarily created by *MasterChart!*, continually.

Secondly, the disk is unprotected. The benefits of this are that you can immediately make a back-up and put it away. I looked at the programs Lynne Ryder reviewed in "Educating the Apple" - all were well protected and back up



copies were \$15 plus \$3 postage and handling! The publisher of this magazine does not believe in the use of the exclamation mark, however, in this case it is warranted. \$18 more to back up a disk you have just bought?

The other benefit in non-protected disks is that the code can be listed and modified. This may not appeal to all and sundry, but it is definitely an advantage as it allows you an option. If ever you need to modify or customise, or just decide to look and see how it's done, you can.

Thirdly, the program comes with a graphics editor which allows drawing,

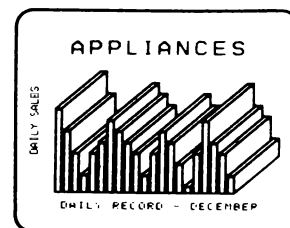
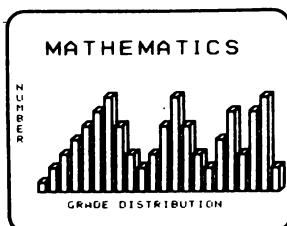
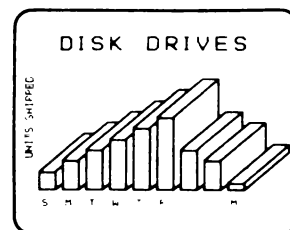
enlarging and reducing, rotating and filling. So creativity is not stifled within rigid program confines.

Fourth and lastly, the program is easy to use and that's always the bottom line when talking about advantages.

So what are the disadvantages? I only found a few minor irritations with this program. For instance, a line chart is not possible automatically - it can be done using the graphics editor. But, I believe the next product from Spectral Graphics Software will be a curve fitter/scientific plotter, so this may be marketing strategy rather than omission.

The other irritation was a little more serious. In order to make the slide show work with most types of graphics, the author needed to use the same technique for storing *MasterChart!* screens. Unfortunately this is not the most economical usage of disk space. And without the facility of saving the actual data points, means once a graph is created, saved to disk and the computer switched off, retyping the data is the only way to correct a mistake or change the type of graph. Plus, *Visicalc DIF* files can be read. Certainly a case of trade-offs.

In summary, *MasterChart!* is impressive, very easy to use and for all my playing around, appears bug-free. For someone who needs to generate top quality bar or pie charts quickly, this is a program which shouldn't be overlooked.



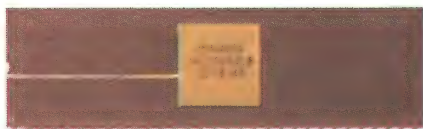
# What makes Macintosh tick. And talk.

The brain of the Apple Macintosh uses a blindingly fast 32-bit MC68000 microprocessor. Far more powerful than the 16-bit 8088 found in current generation computers.

*The 16-bit 8088 microprocessor.*



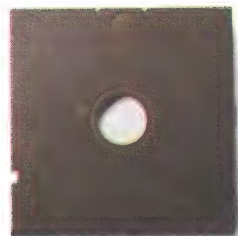
*Macintosh's 32-bit MC68000 microprocessor.*



The heart is a revolutionary technology of windows, icons, pull-down menus and mouse-commands.

Which makes the 32-bit power not only more useful but easier to learn.

Another miracle of miniaturisation is Macintosh's built-in 90mm (3½") microfloppy disk drive. Its 90mm disks store more than conventional 135mm (5¼") floppies – 400K. So while they



*Standard 135mm (5¼") floppy disk.*



*Macintosh's 400K 90mm (3½") disk.*

are big enough to hold a desk-full of work, they are small enough to fit in a shirt pocket.

And, thanks to its size, if you can't bring the problem to a Macintosh, you can always bring



*Small footprint. Macintosh is 1/3 the size and volume of the IBM PC.*

a Macintosh to the problem. (Macintosh actually weighs less than 9 kilos.

And speaking of talking, Macintosh has a built-in polyphonic sound generator capable of producing high-quality speech or music.

All it takes to get it talking is special Macintosh speech generating software.

On the back of the machine, you'll find built-in high speed RS232 and RS422 AppleTalk/serial communication ports. Which means you can connect printers, modems and other peripherals without adding \$250 cards.

It also means that Macintosh is ready to hook into a local area network. (With the AppleTalk Personal Network, you'll be able to connect up to 32 computers and peripherals.)

Should you wish to double Macintosh's storage with an external disk drive, you can do so without paying extra for a disk-controller card – that connector is built-in, too.

And, of course, there's a built-in connector for Macintosh's mouse, a feature that can cost up to \$500 on computers that can't even run mouse-controlled software.

Of course, the real genius of Macintosh isn't its serial ports or its polyphonic sound generator.

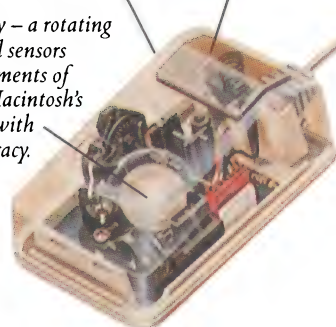
The real genius is that you don't have to be a genius to use Macintosh.

You just have to be smart enough to buy one.

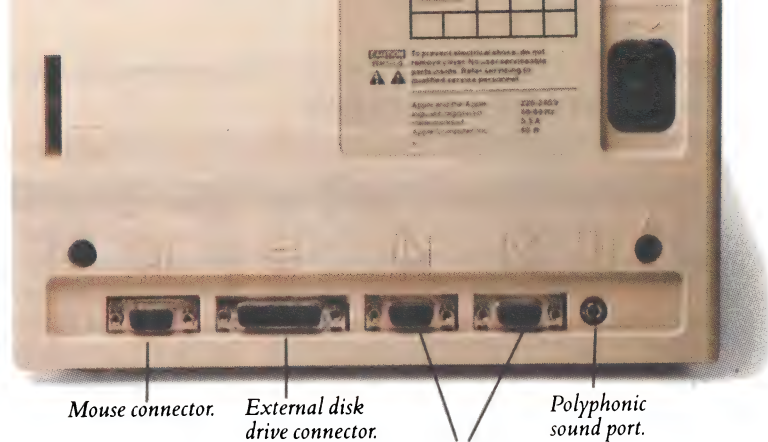
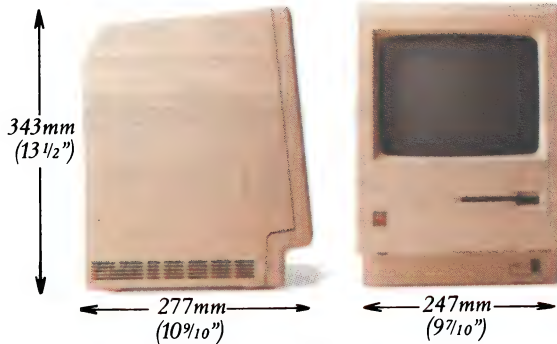
*Some mice have two buttons. Macintosh has one. So it's impossible to push the wrong button.*

*The Mouse itself. Replaces typed-in commands with a form of communication you already understand – pointing.*

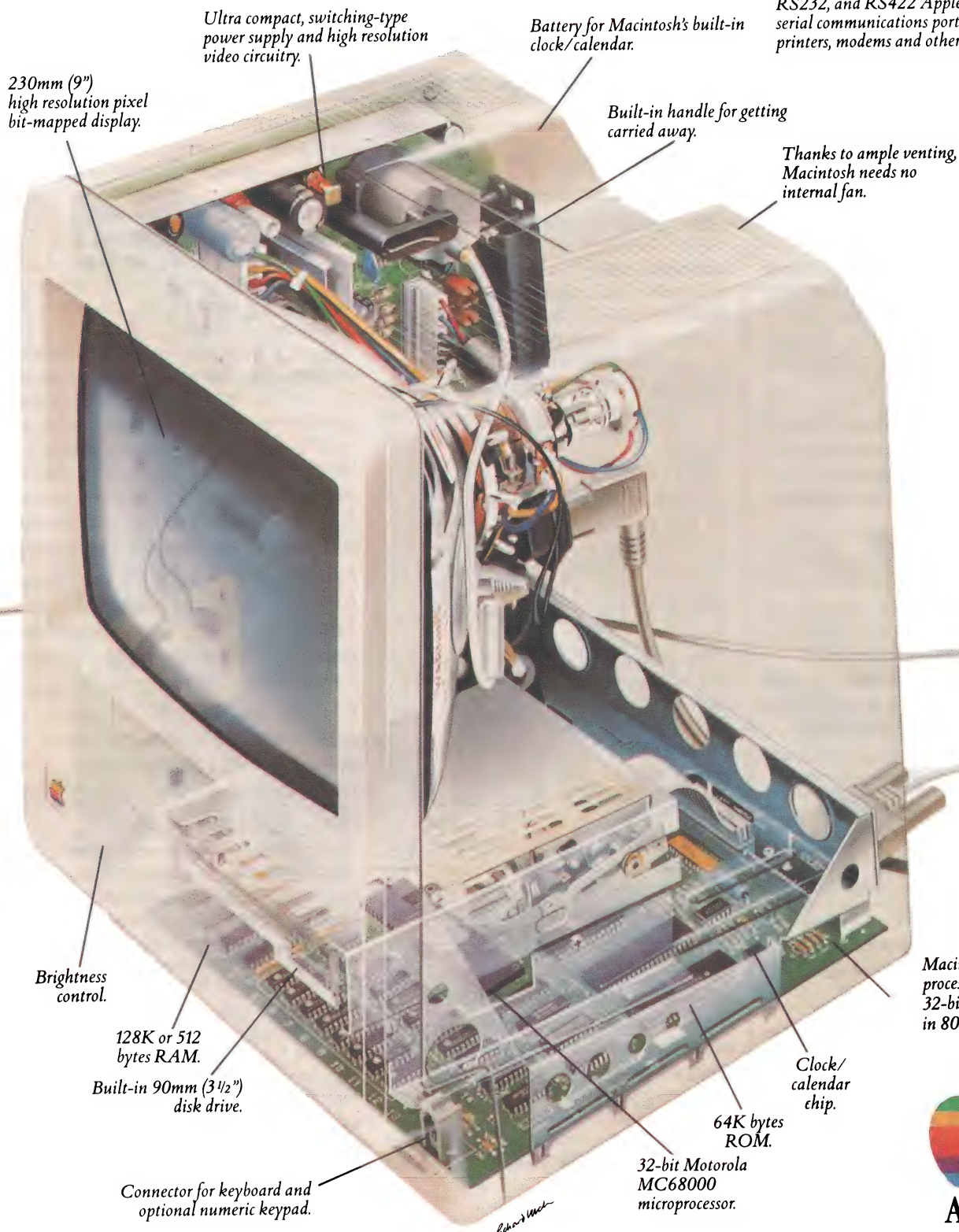
*The inside story – a rotating ball and optical sensors translate movements of the mouse to Macintosh's screen pointer with pin-point accuracy.*







RS232, and RS422 Appletalk/  
serial communications ports for  
printers, modems and other peripherals.



Macintosh's digital board – the  
processing power of an entire  
32-bit digital graphics computer  
in 80 square inches (516 sq. cm).



# Integrated programs for the Apple II *AppleWorks versus Jane*

If integrated programs are all the rage for other computers - shall the Apple II lag far behind? We look at *AppleWorks* and *Jane*.

The move towards integrated programs has not been a smooth one. The only great success story in the long line of programs which have been dangled before the eyes of a fairly disinterested public has been *Lotus 1-2-3*. This is not available on the Apple - except in the form of *Jazz* on the Macintosh - and it is impossible to use it as standard to compare anything with, because it uses MS-DOS and was created specifically for the IBM PC environment.

The nearest programs we have available in Australia are *AppleWorks* and *Jane*.

Of the two, *AppleWorks* is by far the most popular and is often made part of a bundled sale to first time users.

Its history is interesting. It was originally produced for the ill-fated Apple III - the machine which Apple thought

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***"The only great success story in the long line of programs which have been dangled before the eyes of a fairly disinterested public has been Lotus 1-2-3."***

---

would drive the Apple II from the market in six months - and only works if you have enough internal memory. The standard 128k on the IIe and IIc will do very nicely, although I am told a version which will

access the newly released memory board going up to one megabyte will be with us shortly. Hasten the day.

I first saw *AppleWorks* being used by the Hong Kong Apple education specialist, George Caruso. He seemed to be making fairly light work of it and was strongly in its favour as a working program.

*AppleWorks* is one of those programs where you boot on one side of the disk and then flip it over and run it on the other. You can run it with just one disk drive, and many Apple IIc owners do just that, but it is far easier and more elegant to use if you have two disk drives.

The program is, incidentally, unlocked and you can start off by making two back-up disks and then store your original away in safety.

The way the program works is almost exactly as if you had opened the drawer of a file cabinet and seen a row of files facing you waiting to be read. There is also a "desktop" on which you can spread the folders you are going to be using, and it is here you start to yearn for the one megabyte version. The desktop is

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***"The program is, incidentally, unlocked and you can start off by making two back-up disks and then store your original away in safety."***

---

restricted by the available memory in the system, and although this comes to 55k you soon start running out of puff if you are working with a gynomous spreadsheet and a lot of business graphics.

There is no doubt the word processing program is perfectly acceptable. I would go further and say that it bears comparison with the sainted *Zardax* in either version of that splendid Queensland package. And, because it is

---

***"It is relatively easy to prepare a long business report with all the bells and whistles, because you can switch rapidly backwards and forwards through the programs, using a cut and paste facility to move text, diagrams, information or parts of the spreadsheet."***

---

integrated with a spreadsheet and a business graphics package, it is relatively easy to prepare a long business report with all the bells and whistles, because you can switch rapidly backwards and forwards through the programs, using a cut and paste facility to move text, diagrams, information or parts of the spreadsheet.

It contains a wide selection of text formatting commands although those of you who are used to the elegant simplicity of *Zardax* may find they are



### Integrated programs for the Apple II

overly complex and cumbersome. They are still much better than the dreaded *WordStar*. Most of them are based around the use of the Open Apple key and, although all text is automatically reformatted to adjust to formatting instructions, making it a quantum leap more acceptable than the loathsome *WordStar*, it does not show you precisely what you will get when you print out although all the page breaks and the indentations will be there.

More worse, as we say, it does not automatically rejustify when you enter text. If you enter a slab of text you will almost certainly have to go through a repagination process. This is no major hassle but if you have been spoiled by a word processing program which carries this out automatically it can get up your nose.

The printer drivers built in to *AppleWorks* are something less than totally comprehensive. The rotund public relations person, Michael Southern, has

---

***"In this, in it is far superior to any other spreadsheet because the commands are logical and easy to remember."***

---

his Apple IIe connected up to a Qyx printer of uncertain vintage and protocols. Using *Zardax* it works like a dream. Using *AppleWorks* it point blank refuses to follow paragraphs correctly.

It is true you can hardly expect a word processing program to cater for everything - although *Zardax* has attempted to do just that - but it should cope with as many printers as possible. *AppleWorks* would get marks of six out of ten in this area.

The spreadsheet allows you to work with up to 127 columns by 999 rows - which you will have difficulty accessing in its entirety unless you are using a boosted memory card and a modified *AppleWorks*. The argument could be advanced that if you are working on spreadsheets of that magnitude you should be using another

dedicated spreadsheet program.

For most uses it is more than adequate except in one respect. The spreadsheet suffers from the crippling liability of not allowing different column widths to be used. This was the greatest drawback of the original *VisiCalc*, and I had thought we had finished with that awful bogey once and for all.

When *VisiCalc* first came out everyone was busily writing supplementary programs to allow you to alter the column width before printing, simply because, if you can't, you waste a large amount of space. If the heading you want is "Entertainment" you need a 13 character wide column to contain it. Which means that if the next column is the number 8.65 you have a nine column gap before anything else happens.

In a sense *AppleWorks* has tried to get around this by allowing long titles to flow

---

***"easy to use and handles substantial amounts of information with speed"***

---

across into two or more columns. Sounds fine in theory but works badly in practice. Supposing you have entered "Cash" as your first column, and allowed a reasonable six characters as your standard column width. Then, some way down the page, you insert that offending entry "Entertainment" again. This will now flow over three columns and thus interfere with any figures you have placed in columns two or three. This is not the end of the world but it is a severe deficiency in any spreadsheet and it is difficult to see why it was allowed.

The spreadsheet does not use the commands which are the standard on almost every other spreadsheet. Instead, to fit in with the total concept in the other parts of *AppleWorks* it uses Open Apple and then a series of mnemonic commands. In this, in it is far superior to any other spreadsheet because the commands are logical and easy to remember. If you have been using *VisiCalc* or *FlashCalc* you may find it a little awkward at first but, once you have got used to it you will never want to go back to the awkward and fairly illogical original spreadsheet commands. In this one area alone *AppleWorks* appears to be miles ahead of the pack.

Possibly because someone used the concept of de Bono's lateral thinking and started from scratch. Would that they had done the same with the expandability of columns.

The database portion of *AppleWorks* is exactly as advertised but it is not a true relational database. Rather it is a filing system and none the worse for that. It is easy to use and handles substantial amounts of information with speed and simplicity. You can set up your own blank forms on which to enter information and then you have access to a considerable range of searching and sorting facilities.

*dBase II* it ain't - but how many users apart from professional programmers have ever used the full power of the program? The reports that you engender

### PLUS WORKS

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APPLEWORKS

Norwich Data Services Ltd announces:

- \* Expand Appleworks to 1 megabyte to run on your Apple II, II+, IIE or Compatible
- \* Change STARTUP disk to let you run Appleworks with all functions available from your keyboard
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**PLUS-WORKS:** requires 64K Apple II or Compatible, Applesoft ROMS, 80 column card and usual shift key mod where needed. \$35.75 + \$4.00 postage/packing.

**PLUS-WORKS-XM:** requires addition of suitable ram card to expand Appleworks to 1 megabyte and data base to 4,200 records, works for IIE also, most ram cards supported. \$79.95 + \$4.00 postage packing.

**PLUS-WORKS-XMP:** requires addition of Starcard or similar extended Z-80 card with 64K RAM to give 72k desktop. \$79.95 + \$4.00 postage/packing.

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Starcad trademark of MicroPro International

### Integrated programs for the Apple II

in this way can either be shown on the screen or printed out or transferred to another part of the *AppleWorks* module for further processing and integration. It is difficult to imagine how immensely convenient it is to be able to pluck a name and address out of a database file and then transfer it over to a word processing program in one simple action. It saves a large amount of otherwise wasted time.

Transfers are made using the clipboard method so well known to Macintosh users. This means that no matter which part of *AppleWorks* you are operating in, transferring to another module normally only takes a couple of keystrokes - and you take all the relevant information with you. If you get into a jam there are dozens of help screens in every module to show you the way out of your drama.

Another plus point for this program is that it shows you the amount of disk space you have available, so you do not start what you cannot save, and it also allows you to convert any files you have

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***"It is difficult to imagine how immensely convenient it is to be able to pluck a name and address out of a database file and then transfer it over to a wordprocessing program in one simple action. "***

---

been using in *VisiCalc* or one of its myriad clones, over to *AppleWorks*.

Is this, then, the perfect integrated program?

Accepting the fact the spreadsheet could do with some adjustable columns and the word processing package could use more printer drivers and could do with a business graphics package integrated

into the whole, it is almost certainly the best available on the market at the moment. When it is adapted to use the new memory card which can go right up to one megabyte the Apple II will become the truly professional business tool we always knew it had the capability of being. For *AppleWorks* one Mr Smiley badge, two gold stars and a go home early pass.

*Jane* gets a rather less enthusiastic report. The first problem is you cannot use *Jane* unless you have a mouse or a Koala Pad fitted to your computer. The attitude of this magazine towards those damned rodents is now so well known as not to need repeating.

This insistence on using the mouse automatically woofs the price of this integrated package into the stratosphere

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***"The attitude of this magazine towards those damned rodents is now so well known as not to need repeating. "***

---

and it should only be seriously considered if you already have a mouse or if you intend to make full use of one in other programs. It is true it can be used with a Koala Pad - a product for which we have immense admiration - but this is a less than felicitous solution.

If you have got a mouse then you will be using your Apple II in what can be only called a Macintosh configuration. There will be icons on the screen and you will use your mouse to select the program you want to work with by moving the arrow and then clicking the button. Every document in *Jane* appears in the screen window and you can have two screens running with, say, a spreadsheet in one and the wordprocessing module in the other. This is a great asset but is totally destroyed by the lack of speed within the program.

For example, if you are a moderately competent typist - and you should be - then the program simply will not keep up. Once you burst through the 40 words a minute barrier the program starts to lag behind and, horror of horrors, starts

to lose characters from the copy.

---

***"Every document in Jane appears in the screen window and you can have two screens running with, say, a spreadsheet in one and the wordprocessing module in the other. "***

---

Secondly, the cut and paste facility is restricted to the amount of copy you can see on the screen at any one time. If you are writing seriously then cut and paste helps you get the finished document into some sort of logical order. With *Jane* you will either be restricted to minor moves or you will have to complete a block move in stages.

The spreadsheet is only 20 rows by 24 columns - the word processor is only 60 columns but we can live with that - which is useless for anything except the most skimpy of spreadsheet calculations. You have to use the mouse to point to any cell you wish to use and entry from the keyboard is arthritically slow.

The database, called *Janelist*, only allows you up to 10 items of up to 25 characters each on any single report card. Which is pretty hopeless when it comes to addresses.

It is difficult to know what market *Jane* is aimed at. Certainly it is useless for a

---

***"You have to use the mouse to point to any cell you wish to use."***

---

professional. And pretty useless for an amateur. It is too slow, too small and too constricted.

Yet *Jane* has the basis of a good idea because there are people who uses mice (that is the correct plural of mouse in computer terminology) and who would like Macintosh type icons to work with.

We may see that in later editions of *Jane*. Until then we have to say, "You *Jane*, me disappointed.

# Mac -Idle Desk Accessory

We use a range of something over thirty of the desk accessories on our Macintosh - different programs, different accessories. The one which is the most practical use to us is the less than felicitously named "Idle Desk". This dims the screen and puts an icon flashing gently around the screen to remind you the Macintosh is still on, if not active. The program was written by Larry Rosenstein and, as he explains below, reasonably expert programmers can modify the icon to suit their tastes.

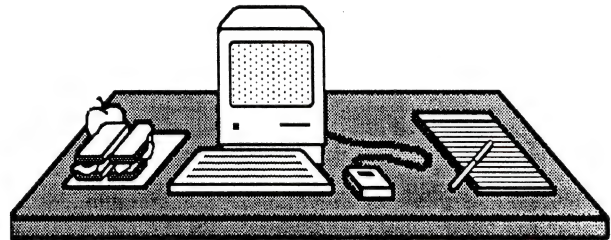
The features of "Idle Desk" are:

- erases the whole screen and randomly moves an icon around
- runs during the host application's idle time (ie., does not take over the whole machine)
- exits when you press the mouse button (so long as the cursor is not in the menu bar) or if another window becomes active (ie., if you are in the Finder and insert a disk)
- if you hold down the Option key you can see what used to be on the screen (it does not save the bits, however so it relies on the application being able to respond to update events)

If you examine the driver you will find the characters ICN#

***"You can edit these to customize your desk accessory."***

followed by a word containing 3. This is the resource type and ID of the icon that it flashes on the screen. You can edit these to customize your desk accessory. (For example, display a different icon depending on what application is running. If you do this you would want to install the driver in the application itself, including the Finder.) Both ICON and



ICN# resource types will work. If the resource does not exist a square is moved around instead.

### Implementation Note:

The DA creates a window the size of the screen. It copies the window's portRect into its visRgn before drawing, so that it can draw on top of the menu bar. It saves the old menu bar and clears the menus to ensure that the user cannot pull down a menu. When you hold down the option key it repaints the menu bar and shrinks the window down to 0-size.

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# Resurrecting Apple DOS

by Steven Waring

*It happens to all of us; you spend a good part of an evening typing in a program and when you go to save it nothing happens except for a few error messages.*

Of course you could prevent a huge disaster like this from occurring if you saved your program frequently along the way. Even so everybody sometimes forgets to do this and can be left with a program that will not save because DOS has been clobbered.

The easiest way to try and gee DOS back is to do a warmboot by CALLing 976. If part of DOS is actually missing then this will not work. I have seen suggestions in magazines that the best way to go about this is, beforehand, save DOS on a tape then replay when it DOS crashes. This is a very cumbersome method and often takes many retries to resurrect DOS.

The following way might seem foreign to some people new to computers but if you follow this method closely you have a good chance of saving your program.

To use this method you must have, before DOS crashes, initialised a disk and deleted the hello program.

Before you do anything else you must record some of the program's pointers. To do this peek the following locations and write down the results:

```
PRINT PEEK(175) :THESE ARE THE END OF PROGRAM
PRINT PEEK(176) :  ADDRESSES
```

```
PRINT PEEK(105) :THESE ARE THE START OF VARIABLES
PRINT PEEK(106) :  ADDRESSES
```

```
PRINT PEEK(107) :THESE ARE THE START OF ARRAY
PRINT PEEK(108) :  ADDRESSES
```

```
PRINT PEEK(109) :THESE ARE THE END OF ARRAY
PRINT PEEK(110) :  ADDRESSES
```

The reason you lose your basic program when you boot DOS is that when DOS boots it uses the same memory that the start of your basic program uses and then relocates itself. All you have to do is move the start of your basic program to another part of memory. Also when DOS boots it expects another basic program to come into memory, being the HELLO program. To get ready for this it resets all the pointers showing where the program ends etc. This is why you must peek the above location so you can replace them later.

To do this enter monitor by CALL -151

The addresses used by DOS which write over your basic program are \$800-\$8FF. Once in the monitor you must move this part of memory using the MOVE command.

The syntax is DESTINATION < START .  
END M  
Type

6000<800.8FFM

Now the start of your basic program is at \$6000 - \$60FF. When you now boot

DOS your program will not be over written. Go back to Basic by doing a CTRL-C then place the disk without a hello program in the disk drive and boot it by doing a PR£6.

DOS is now back into your machine and all you have to do is restore your program and its pointers. Enter monitor again by typing CALL-151 and move memory back using the same command MOVE.

Type

800<6000.60FFM

Now the basic program is back into the machine but you still must restore the pointers which you wrote down from the PEEKs above.

For every PEEK you did above you must do the following:-

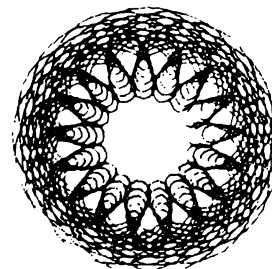
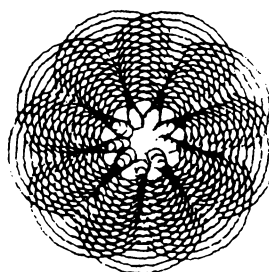
POKE address , number you got from it.

le when you peeked location 105 and you got back for example 10 you would now type:-

POKE 105,10

And so on for the rest of the PEEKs.

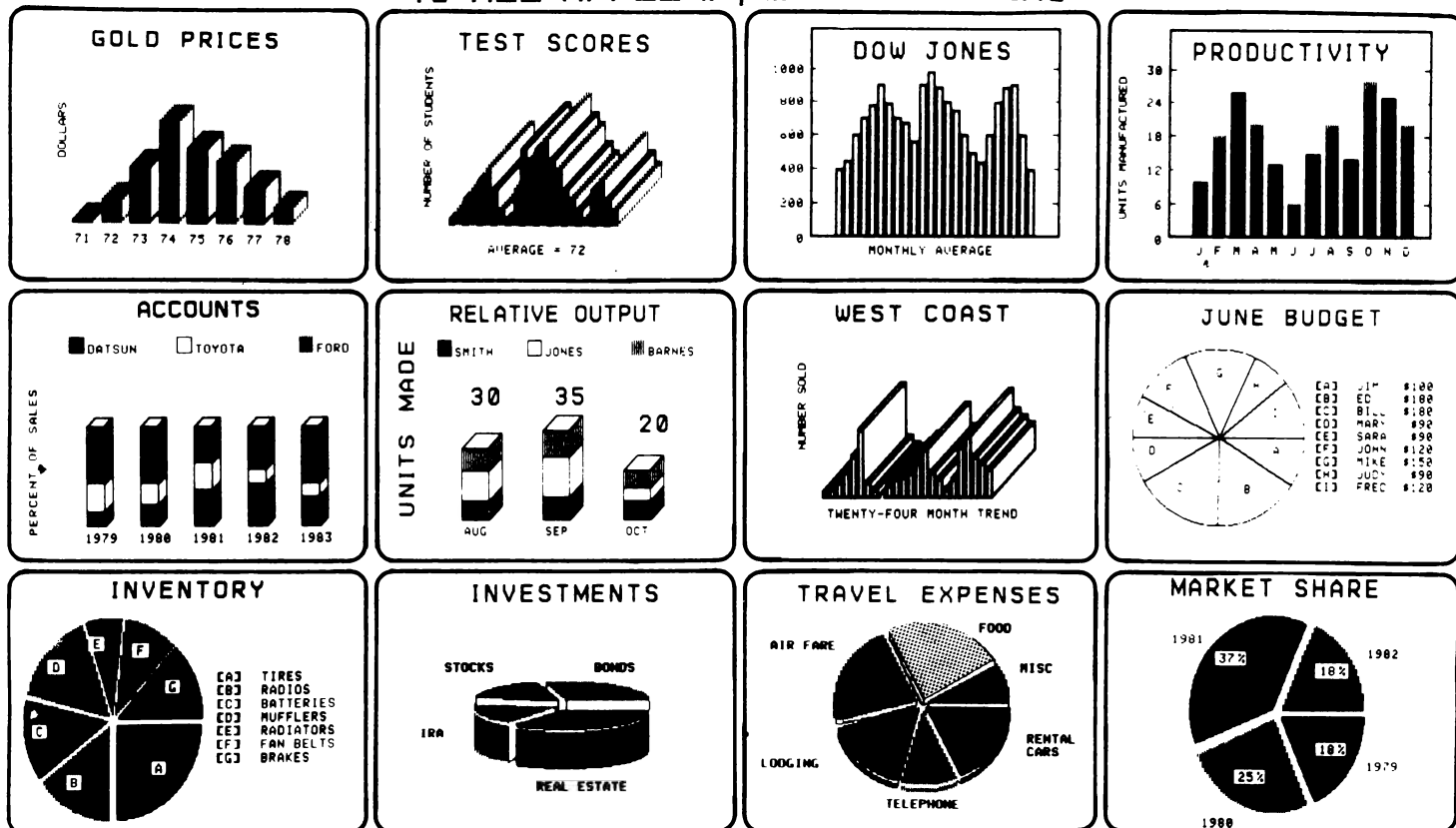
After you have followed this procedure you will be able to save your basic program. This method might seem complicated and long, however it is a lot quicker than retyping your program.





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S.A. Smith, letter to SOFTALK, June, 1984, page 14.

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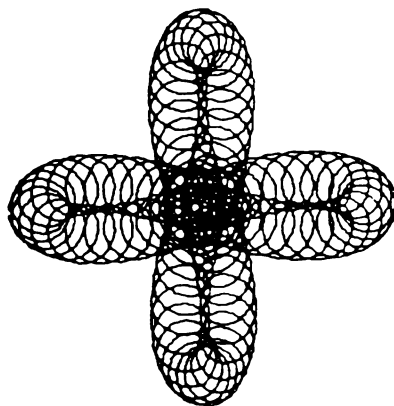
# Book reviews

**Title:** *Microcomputer Art*  
**Author:** *Ross Edwards*  
**Publisher:** *Prentice Hall*  
**Cost:** *\$17.95*  
**Size:** *about 230 pages*

This is a great book. When I thumbed it the first time, with only a casual glance, I thought it was Logo text. There were the neatly geometrical figures so indicative of the presence of the turtle, there was the layout reminiscent of Harry Ableson. Yet, when I finally got down to the book in depth, it consisted of short Basic programs. No Logo.

Microcomputer Art uses a computer to simulate a Geometric Lathe. "During the nineteenth century a number of books were published in England on the subject of ornamental engraving. These books record the intricate designs and patterns engraved by the Victorians on wood, metal, ivory and glass."

Engraving was fashionable in those days though the costs involved in purchasing the equipment were astronomical. According to the book, in 1838, such a lathe with a complete set of geometric attachments cost 1500 pounds, or in today's terms, over \$200,000.



With the computer, the cost has been reduced, though it may be difficult to transpose the designs created onto anything more solid than paper. However, as the book quotes from T.S. Bazley in 1872, "It is hardly possible to put it in motion, whatever be its adjustments, without obtaining a figure of symmetry and pleasing appearance." What Microcomputer Art does is give an incredibly rich selection of such pleasing designs.

The code is seldom more than six or eight lines and is not machine specific. Chapter 3 gives all the information on how to make the template program run on the Apple, IBM-PC, TRS-80 Color, Atari, BBC, Commodore 64, ZX Spectrum and even on the Microbee. Looking at the example of plotting a circle, the template is as follows:

```
10 HCOLOR
20 FOR A = 0 TO 2 * PI STEP .1
30 X = 50 * COS(A) + 100
40 Y = 50 * SIN(A) + 100
50 PLOT X,Y
60 NEXT A
```

The program will give SYNTAX ERRORS in all but three lines. However, knowing to substitute HGR2 for HCOLOR, 3.14169 for PI, 140 for the 100 in the X line, 96 for the 100 in the Y line, and HPLOT for plot, will give you a circle.

These substitutions hold for all the

programs in chapters 4 to 11. These are: 4. Plotting Epicyclic Patterns, 5. Plotting Consecutive Epicyclic Patterns, 6. Plotting Circulating Epicyclic Patterns, 7. Plotting Detailed Epicyclic Patterns, 8. Plotting Compound Epicyclic Patterns, 9. Speed Plotting, 10. Line Plotting, 11. Plotting Advanced Compound Epicyclic Patterns. In other words, a wealth of short beautiful programs.

The book is a must for those into graphics. For those who need a little prompting I've included a couple of the simpler examples below.

## Epicyclic curves

```
10 HCOLOR
15 R = : S = : N =
20 FOR A = 0 TO 2 * PI STEP .05
30 X = R * COS(A) + S * COS(N * A) + 100
40 Y = R * SIN(A) + S * SIN(N * A) + 100
50 PLOT X,Y
60 NEXT A
```

## Consecutive epicyclic patterns

```
14 N = 9
15 FOR R = 27 TO 81 STEP 9
16 S = R/9
70 NEXT R
```

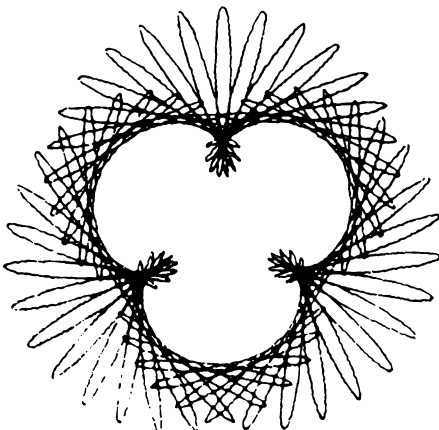
## Circulating epicyclic patterns

```
14 N = -7/3
15 FOR R = 28 TO 88 STEP 12
16 S = 3/7 * R
20 FOR A = 0 TO 6 * PI STEP .05/(R/28)
70 NEXT R
```

```
14 N = -14/5
15 FOR R = 27.5 TO 55 STEP 5.5
16 S = 7/11 * R
20 FOR A = 0 TO 10 * PI STEP .05
70 NEXT R
```

```
14 N = -12/7
15 FOR R = 27 TO 51 STEP 6
16 S = R - 6
20 FOR A = 0 TO 14 * PI STEP .05
```

*continued on page 37*



## MAIL ORDER LIST

### HARDWARE SPECIALS

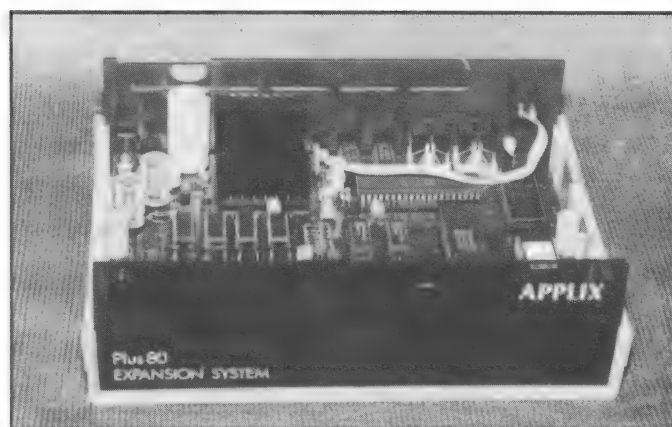
#### APPLIX - CP/M FOR THE APPLE

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#### Comparison of Applix CP/M and Cirteck CP/M

Feature	Cirtek	Applix
easy installation	NO	YES
extra RAM	NO	YES
keyboard enhancement	NO	YES
utilities software	NO	YES
parallel printer port	NO	YES
pages in manual	4	74
local product	NO	YES
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Only for the experienced Lode Runner or Jumpman addict. Excitement plus! Reviewed Apr/May AAR. 49.95

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A book which will be used more than the manuals. Reviewed March AAR. 37.95

**MACPAINT - DRAWING, DRAFTING, DESIGN**

This book is a must for those with a Mac and a graphics application. Excellent! Reviewed Apr/May AAR. 31.50

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This book will be used more than the manuals. Reviewed March AAR. 37.95

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## BOOK REVIEWS

**Title:** *A Glossary of Computing Terms*  
**Author:** *Edited by the British Computer Society*  
**Publisher:** *Cambridge University Press*  
**Cost:** *\$4.75*  
**Size:** *14.5cm x 21cm, about 60 pages*

We can't all be expected to know the meaning of every computer term being bandied about today. We also can't expect any book to contain every such term. Recently I picked up a copy of the IBM Systems and Products Guide for mainframes and three and a half pages in two columns were devoted just to acronyms. The number of new words just appears to increase daily.

So how does the Glossary of Computer Terms stack up? In size, shape and price it's great to fold and push into your coat pocket. However, the POMs are a strange lot. Look for "warm boot" and you won't find it anywhere. Not genteel enough - "warm start" is far more eloquent. And, not to corrupt the Queen's English, motherboard is two words - "mother board". Sounds a little like influence from nursery rhymes.

Then there are "grandfather, father, son files". Not to be confused with who used the computer around the house, these terms refer to the three most recent

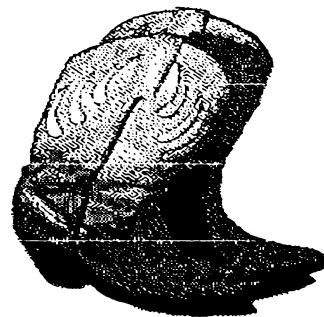
updates of a file. Whatever happened to granny files, mum files and daughter-in-law-once-removed files?

On lucid definitions the book also sometimes wavers - "truncation error" - is the error induced by truncation". However, apart from the minor idiosyncracies, there is some depth and good concise explanation. For example, there are 15 different types of printer defined, 12 different types of storage and on generations of computers,

"3.1 First Generation is the generic term to describe those early machines which used electronic valves and had limited-size storage devices such as mercury delay lines, electrostatic and magnetic drum memories. Important first generation development machines were EDSAC, EDVAC and the earlier ENIAC. The earliest commercial machines included LEO (Lyons Electronic Office) and Univac 1.

"3.2 Second Generation is the generic term used to describe those machines in which the transistor replaced the valve as the basic component. A significant outcome was the greater reliability of components, lower power levels needed for operation and a considerable increase in the computing-power/size ratio. One of the most significant machines was Atlas.

"3.3 Third Generation is the generic term used to describe those machines in which the integrated circuit replaced the transistor as the basic component. The most significant result was the ability to produce families of machines (ICL 1900



series, IBM 360 series etc.) where a wide range of speed or working capacity was available in similar, compatible units.

"3.4 Fourth Generation is a term used to describe those machines which are currently (mid 1980s) in common use. The characteristics are associated with the use of chip technology, low cost memory and wide availability of a relatively small number of operating systems.

"3.5 Fifth Generation is a term being used to characterise the type of computer architecture which is predicted for the early 1990s. The characteristics will include extremely fast processing, very large main store areas and input/output mechanisms designed to interact with people through voice and touch."

These are not to be confused with generations of programming languages which avoided mention.

Overall, the book is OK. It won't break the bank and does define about 700 terms. It is easy to use and school children could find it valuable. As a definitive work, however, better look elsewhere.

## 15 UNITS

Symbol	Prefix	Meaning	Fraction	Decimal	Power of ten
G	giga	one thousand million		1 000 000 000	10 <sup>9</sup>
M	mega	one million		1 000 000	10 <sup>6</sup>
K	kilo	one thousand*		1 000	10 <sup>3</sup>
m	milli	one thousandth	1/(1000)	0.001	10 <sup>-3</sup> =1/10 <sup>3</sup>
μ	micro	one millionth	1/(1 000 000)	0.000 001	10 <sup>-6</sup> =1/10 <sup>6</sup>
n	nano	one thousand-millionth	1/(1 000 000 000)	0.000 000 001	10 <sup>-9</sup> =1/10 <sup>9</sup>
p	pico	one million-millionth	1/(1 000 000 000 000)	0.000 000 000 001	10 <sup>-12</sup> =1/10 <sup>12</sup>

Examples: 7 Mbytes is seven million bytes.

23 ms is twenty-three thousandths of a second.

3 Kbaud is a rate of transfer of 3000 bits per second.

\*Note: in computer storage the value of K is 1024 (=2<sup>10</sup>), for example 8K of store is 8192 storage locations.



## BOOK REVIEWS

Title: *66 Scientific and Engineering Programs for the Ile and //c.*

Author: *Joseph J Carr.*

Publishers: *Reston*

Cost: *\$37.95*

Size: *17.5cm x 23cm,  
about 300 pages*

Here is the type of book I just love to review. It's cover to cover programs and subroutines which can be used in a number of different applications as well as the ones implied in the title.

Better, in many cases the mathematics behind the programs is clearly explained although the code is not. Without listing each of the 66 programs, there are five sections to the book. Section I is called "General Math Problems" and includes several programs on differentiation and integration, such as "Geometric Integration of Exponentially Decaying Curves", and a monthly loan repayment program.

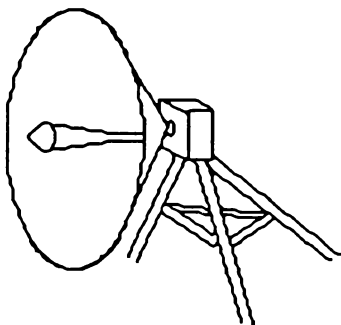
Section II is "Statistics", but the seven programs here do not give any sort of depth for a serious application. The mean, variance and regression programs use data from the keyboard rather than from disk. Anyone who has needed stats will know it is far easier to enter the data once, store it and then run the tests. Turning off the computer then becomes a less harrowing experience.

Section III is "Radio Engineering". Most of this section is, I must admit, foreign to me. For those into antenna calculations it seems there is a wealth. The examples I have drawn are from this section.

Section IV is "General Electronics". The programs here deal with resistors, capacitors, amplifiers and oscillators. One program the girls at the office found interesting was "Design of a Monostable Multivibrator - One Shot". However, their knowledge of electronics was found lacking.

Section V is the last section and is titled "Life Sciences". It appears this was an afterthought as there are only two programs presented; "Peripheral Resistance Calculation" and "Mean Arterial Blood Pressure".

Overall, the book would be valuable to someone in the field. At the worst, it is a good source of ideas to build more complex programs. At the best, it will save time and trouble by giving Basic programs for specific problems and applications. Definitely not a book to buy for cursory interest.



### Listing

```
100 REM THE NAME OF THIS PROGRAM IS COAXIAL.CBL
110 GOSUB 700
120 PRINT "SELECT DIELECTRIC TYPE FROM MENU
    BELOW:"
130 PRINT
140 PRINT "1. REGULAR POLYETHYLENE"
150 PRINT "2. FOAM POLYETHYLENE"
160 PRINT "3. TEFLON"
170 PRINT "4. AIR"
180 PRINT
190 PRINT "SELECTION?"
192 INPUT P
200 IF P > 4 THEN GOTO 120
210 IF P = 1 THEN V = 0.66
220 IF P = 2 THEN V = 0.80
230 IF P = 3 THEN V = 0.70
240 IF P = 4 THEN V = 1.00
250 GOSUB 660
260 PRINT "ENTER DIAMETER OF INNER CONDUCTOR IN
    INCHS (in.): ";DI
262 INPUT DI
270 PRINT
280 PRINT "ENTER DIAMETER OF OUTER CONDUCTOR IN
    INCHS (in.):"
282 INPUT DO
290 PRINT
300 D = DO / DI
303 J = 0.4348 * LOG (D)
310 E = 1 / (V ^ 2)
320 C = (7.36 * E) / (J)
330 L = (0.14 * (J)
340 Z = SQR (L / C) * 1000
350 TD = 1.016 * SQR (E) * (DI + DO)
360 FC = 7.5 / ( SQR (E) * (DI + DO))
370 C = C * 100
380 C = INT (C)
390 C = C / 100
400 L = L * 100
410 L = INT (L)
420 L = L / 100
430 FC = FC * 100
440 FC = INT (FC)
450 FC = FC / 100
460 TD = TD * 1000
470 TD = INT (TD)
480 TD = TD / 1000
490 Z = Z * 100
500 Z = INT (Z)
510 Z = Z / 100
520 GOSUB 700
530 PRINT "PARAMETERS:"
540 PRINT
550 PRINT "SURGE IMPEDANCE (Z0) : ";Z;" OHMS"
560 PRINT "VELOCITY FACTOR (V): ";V
570 PRINT
580 PRINT "CAPACITANCE (C) : ";C;" pF/ft"
590 PRINT "INDUCTANCE (L) : ";L;" uH/ft"
600 PRINT
610 PRINT "TIME-DELAY FACTOR: ";TD;" nS/ft"
620 PRINT "CUT-OFF FREQUENCY: ";FC;" GHz"
630 GOSUB 660
640 GOSUB 740
650 GOSUB 770
660 FOR I = 1 TO 5
670 PRINT
```

## BOOK REVIEWS

```

680 NEXT I
690 RETURN
700 FOR I = 1 TO 30
710 PRINT
720 NEXT I
730 RETURN
740 PRINT "PRESS ANY NUMBER KEY AND CR TO
    CONTINUE:"
742 INPUT SS
760 RETURN
770 GOSUB 700
780 PRINT "WHAT'S YOUR PLEASURE?"
790 PRINT
800 PRINT "1. DO ANOTHER"
810 PRINT "2. FINISHED"
820 PRINT
830 PRINT "SELECTION: ????"
840 INPUT L
850 IF L > 2 THEN GOTO 790
855 ON L GO TO 110,860
860 PRINT
870 PRINT "PROGRAM ENDED"
880 END

```

### LISTING

```

100 REM THE NAME OF THIS PROGRAM IS PRUCAL
110 REM THIS PROGRAM CALCULATES THE
    PERIPHERAL RESISTANCE OF BLOOD VESSELS
120 REM USING ONE OF TWO POPULAR EQUATIONS:
    ONE SIMPLISTIC AND THE OTHER
130 REM NEARER THE TRUTH
140 GOSUB 1000
150 GOSUB 740
160 GOSUB 860
170 GOSUB 250
180 IF Z = 1 THEN GOTO 300
190 IF Z = 2 THEN GOTO 410
200 GOSUB 1000
210 PRINT "INCORRECT ENTRY. PRESS '1' TO CONTINUE:"
220 INPUT P
230 IF P = 1 THEN GOTO 100ELSE210
240 GOTO 1050
250 PRINT "WHICH EQUATION DO YOU WANT TO USE?"
260 PRINT
265 PRINT "1. SIMPLISTIC (R = P/F)"
270 PRINT "2. POISEUILLE'S LAW VERSION"
280 INPUT Z
290 RETURN
300 PRINT "ENTER THE PRESSURE DROP IN mmHg ALONG
    VESSEL SEGMENT"
310 PRINT "BEING CONSIDERED"
320 INPUT P
330 PRINT "ENTER BLOOD FLOW RATE (IN EITHER ml/s OR
    cc/s)"
340 INPUT F
350 LET R = P / F
360 FOR I = 1 TO 5
370 PRINT
380 NEXT I
390 PRINT "R = ",R," PRU"
400 GOTO 1050
410 PRINT "POISEUILLE'S LAW SOLUTION TO FIND PRU"
420 FOR X = 1 TO 10
430 PRINT
500 NEXT X
510 PRINT "ENTER COEFFICIENT OF BLOOD VISCOSITY IN
    DYNES-SECONDS PER"
520 PRINT "SQUARE CENTIMETER (dyn-S/cm**2)"
530 INPUT N

```

```

540 FOR X = 1 TO 10
550 PRINT
560 NEXT X
570 PRINT "ENTER BLOOD VESSEL RADIUS IN
    CENTIMETERS (cm):"
580 INPUT R
590 FOR X = 1 TO 10
600 PRINT
610 NEXT X
620 PRINT "ENTER VESSEL LENGTH IN CENTIMETERS
    (cm):"
630 INPUT L
640 LET Y = 8 * P * N * L
650 LET E = R ^ 4
660 LET Z = 3.14159 * E
670 LET R = Y / Z
680 LET R = INT (R)
690 FOR X = 1 TO 10
700 PRINT
710 NEXT X
720 PRINT R
730 GOTO 1050
740 PRINT "THIS PROGRAM CALCULATES THE
    PERIPHERAL RESISTANCE OF BLOOD VESSELS"
750 PRINT "AND EXPRESSES THE ANSWER
    IN PERIPHERAL RESISTANCE UNITS (PRU)."
760 PRINT "THERE ARE TWO VERSIONS OF THE
    STANDARD EQUATION. THE SIMPLISTIC"
770 PRINT "VERSION ASSUMES SMOOTH, RIGID-WALLED
    VESSELS, WHILE THE POIS-"
780 PRINT "EUILLIE'S LAW VERSION ACCOUNTS FOR
    DISTENSIBILITY IN THE VESSEL"
790 PRINT "WALLS. USE WHICHEVER YOU PREFER."
800 FOR N = 1 TO 10
810 PRINT
820 NEXT N
830 PRINT "ENTER '1' TO CONTINUE:"
840 INPUT N
850 RETURN
860 PRINT
870 PRINT
880 PRINT
890 PRINT "THIS PROGRAM IS BASED ON Introduction to
    Biomedical Equipment"
900 PRINT "Technology, BY JJ CARR & JM BROWN (JOHN
    WILEY & "
910 PRINT "SONS, NEW YORK)."
930 FOR X = 1 TO 10
940 PRINT
950 NEXT X
955 PRINT "ENTER '1' TO CONTINUE:"
960 INPUT M
970 IF M = 1 THEN GOTO 990
980 GOTO 860
990 RETURN
1000 REM THIS SUBROUTINE CRUDELY CLEARS THE SCREEN
1010 FOR N = 1 TO 35
1020 PRINT
1030 NEXT N
1040 RETURN
1050 PRINT
1060 PRINT
1070 PRINT
1080 PRINT
1090 PRINT "CONTINUE? YES = 1, NO = 2"
1100 INPUT C
1110 IF C = 1 THEN GOTO 100
1120 IF C = 2 THEN GOTO 1140
1130 GOTO 1090
1140 PRINT "GOOD-BYE"
1150 END

```

## BOOK REVIEWS

**Title:** *Learn Apple Writer IIe, the Easy Way*

**Author:** Katie Layman and Adrienne Renner

**Publisher:** Prentice-Hall

**Cost:** \$35.95

**Size:** 17cm x 23.5cm, about 160 pages

What happened to the manual? Reading books such as this always brings out suspicious thoughts as doubtless *Learn Apple Writer* is destined to be a best seller to those whose original program came without a manual and they either thought it too rude or were too shy to return to the shop and ask for a complete one.

But if that was all there was to this book, the review would end here. It is not.

The book is good for a total beginner. It is a tutorial which gives step by step breakdowns to the level of keys to press in order to firstly use Apple Writer, and then get fancy.

There are 12 sections and an Appendix. However, the appendix, as in

life, can easily be removed and the body not suffer. Section 1 is called "Getting Started" and includes a photo of the ON/OFF switch in case some user had still not found it.

Section 2 is "Disk Handling" and the user is taught how to initialise disks and then store some sample text. If one comment can be made at this point, the book leaves nothing to chance. It is simple, but it is accurate and mistakes would be difficult to make.

Section 3 deals with cursor movement and editing, while Section 4 explains the printer. Again, if your printer has never been on because you didn't know about the switch, a photograph rectifies.

Section 5 is "Formatting a File". The information and exercises here deal with embedded commands, margins, spacing and the Additional Functions Menu. Section 6 deals with "Special Keyboard Functions" such as justification, centring, underlining and glossary. In all cases the actual computer screens are reproduced in excellent quality.

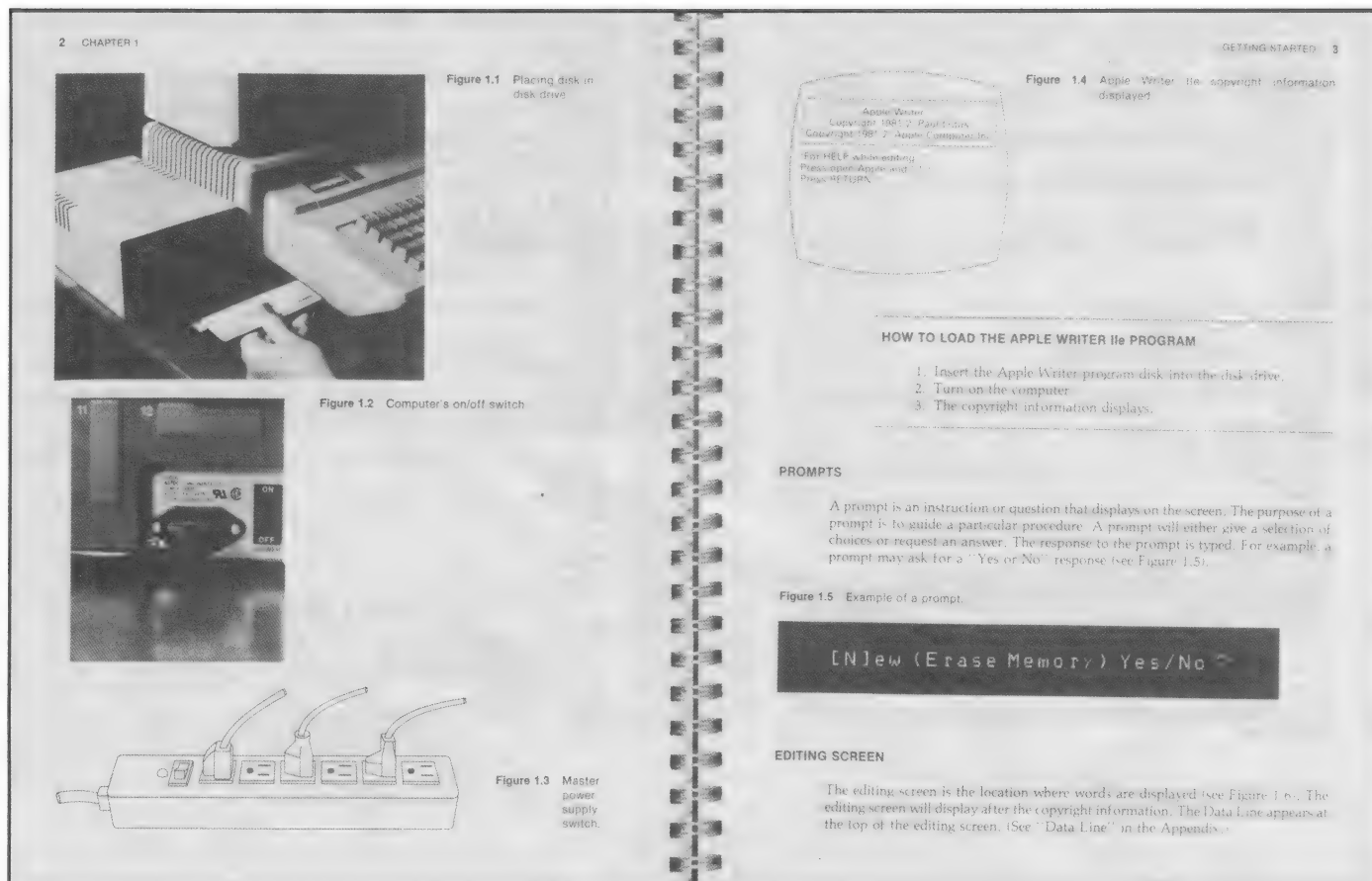
Sections 7, 8 and 9 deal with additional features in editing, printing and managing disk files. Section 10 shows how to

create form letters and Sections 11 and 12 give information on creating tables and other page formats.

I thought the book would be reasonable for my mum. She is not terrified of computers, but does get into a bother when the wrong key is hit and something unexpected flashes on the screen. I guess the same could hold true in a school situation where children are being exposed to a WP for the first time. It is a persevering and very step-by-step text.

But if you know how to switch on your computer, and if you know to use control keys, I doubt this book will be for you.

One nice feature I almost neglected to mention is the book spine. It's metal spiral, so when you open the book it lies flat. Great to work with and means you don't have to use your elbow to keep the place while doing the keyboard exercises. I wonder why all computer books aren't done the same way.



# *Zardax* - the world's best word-processing program?

The word-processing program *Zardax* is produced by Ian Phillips in Queensland. The original version has been widely regarded by Apple users as the best Apple word-processing program in the world. It is the program of choice within this office. The only program we have ever known to rival it is *Sandys* - but this is more slanted towards the dedicated hacker rather than the casual users.

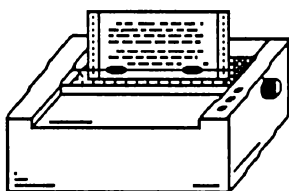
The great virtue of the original *Zardax* is its complete ease of use. All of the codes which tell you where to go in

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***"The original version has been widely regarded by Apple users as the best Apple word-processing program in the world."***

---

a document are logical. You want to go to the beginning of the document - you type in Control b. You want to go to the end of the document - you type in Control e. To go to the left it is Control l and to go the right, Control r. There is a simplistic



beauty about all of the instructions. Comparing it to *WordStar* shows the CP/M program inadequacies up under a glaring light.

It's interesting to note that *Zardax* has become one of the great favourites in Hong Kong. This is because, even if English is not your original language, the operations of *Zardax* are so easy to understand that using the computer as a word-processor becomes a feasible solution.

When *Zardax 2* was announced there was no fanfare of trumpets, no fluttering of flags. It seemed almost to have been released under the Official Secrets Act.

When it arrived at the office we found that it was configured for use on the Apple IIc. It's true that it will work on the Apple IIe but as a straight word-processing combination it goes with the IIc the way cream goes with strawberries, mint sauce goes with lamb. Instead of following the normal procedure

---

***"The great virtue of the original Zardax was its complete ease of use."***

---

of using it ourselves we decided to take an absolute beginner. At the *Sydney Morning Herald*, one of the young reporters, Arlene Levinson, had been commissioned to write a book on drugs for Penguins. Although she was used to using the big terminals at the newspaper she had no experience with a wordprocessor machine. So we lent her an Apple IIc - courtesy of Apple at Ryde -

with a brand new *Zardax 2* program. To make life simpler for her we told her to leave the computer on during the whole time she had it - but to switch the screen off after she finished a session so that no dots would be burnt into the phosphor coating. She followed the instructions to the letter.

Just before this issue went to press she arrived at the office with six disks full of her *magnum opus*. We linked the IIc up to the ImageWriter printer and five minutes later the manuscript was being typed out, double spaced, at high speed, with the proper margins. Arlene Levinson was beside herself in delight. She had completed her book under the deadline and there it was, ready for final editing.

She would be the first to admit that she could not have achieved this without the Apple IIc and *Zardax 2*. She was not even instructed properly on how to operate *Zardax 2*. She was given the manual, the disc and the computer and told to go and work it out on her own. It is interesting that she says she only spent an hour or so thinking about the instructions she had to use with *Zardax 2*. After that it became second nature. And after six weeks she was showing us the best way to use the program.

This is a very remarkable achievement indeed. If you can take an absolute beginner and give them a computer with a program, let them loose on their own and six weeks later get the completed works without any hiccups whatsoever then plainly something has been done very well indeed.

Our thought is that this is a double achievement. On the one hand there is the achievement by Apple in producing the IIc, one of the loveliest personal computers in the world. Simply because we like messing around on the inside of machines we are sometimes guilty of looking upon the Apple IIc as a computer for the beginners. It is of course, anything but that. It is an extremely sophisticated machine which might almost have been designed to be the perfect word-processor.

The second area where congratulations are in order is with *Zardax 2*. First of all the program has been improved - a feat which we would have confidently predicted it was totally impossible. Secondly, the manual - perhaps the



# Zardax

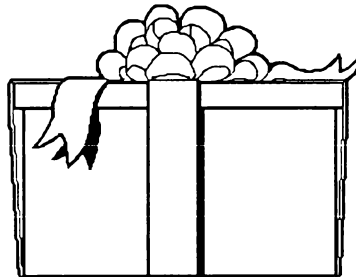
perhaps the weakest feature of the original *Zardax* - has now been improved until it is a professional publication of immense readability.

Ian Phillips appears to have a complete phobia about software piracy. As a result the original *Zardax* was protected 236 different ways from Christmas. All of this protection stopped most of the naughty people making copies of *Zardax* - although it was done and copies have appeared from time to time - but it also meant that the genuine disk was a very skittish animal indeed and would fall over if you ever switched it from one machine to another. There was no problem if you started off with the *Zardax* program on one computer and kept to it. We never did that. As a result we must have gone through more *Zardax* discs than any other company in Australia.

And do not think that our view of *Zardax* is affected by being given free programs. We paid the full price for three complete sets. Mainly, because at the time, we had not met Ian Phillips. If we had, no doubt we would have asked for a discount. But also, because as soon as we saw it we realised that here was one of the great programs.

The second area where *Zardax* used to run into problems was in configuring it for the smorgasbord of machine - machine - printers - 80 column board - printer boards that Apple users tend to have.

Ian Phillips appeared to have tried his very best to cater for every single type of hardware configuration ever known to man. Which meant that the



combinations on a *Zardax* disk ran into mathematically ridiculous numbers.

All this was very well but in adding and adding these features to his program Ian Phillips was in danger of getting away from the original elegant simplicity of *Zardax*.

*Zardax 2* has apparently solved nearly all of these problems. We have not bothered to check the disc locking system, but we have had a guess that it is extremely complicated. But we know provided the same program remains on the same machine we should have no problem. Configuring the disk is amazingly simple on the IIc. The default setup which is built into the program

---

***"there is no configuration needed whatsoever. The program runs straight out of the box"***

---

covers the IIc exactly as it stands and many - if not most - of the printers that would be hung on it. If you are using the Apple IIc with, for example, an ImageWriter then there is no configuration needed whatsoever. The program runs straight out of the box.

Again it is interesting to note that when Arlene Levinson brought the computer and the disk into the office, hooking them up and starting the printer going was a matter of a minute's work. There were no snags, no frantic searching of manuals to find codes, no gibberish coming out of the printer. It worked precisely the way sales demonstrations should - and very rarely do. There are not many

word-processing programs in the world you can say that about.

How does it work?

In many ways the new *Zardax* is very similar to the old *Zardax* - but better. When you boot you get a blank screen which shows that there is no document in memory. The principal key used is escape. This immediately takes you into the main menu which offers you the options of Save, Videoprint, Rename, Info and Write, underneath that are a set of other options File, Edit, Print and List. Most of them are self explanatory and anybody who has ever used *Zardax* before will realise precisely how it works.

---

***"In many ways the new Zardax is very similar to the old Zardax - but better."***

---

After you have written a file you save it by pressing escape and then s. If you want a preview of the way it will look when it is printed you press escape and then v and see the videoprint. If you want to change the name of the file - possibly because you are getting a duplicate name - then press escape and rename. And so on. All of the options listed in the menu are logical - all are extremely accessible. This is not dissimilar to the original *Zardax*.

Where the program is vastly improved is in the use of screens. The original program was, it is true, extremely easy to use but some of the screens with their long lists of examples were less than totally harmonious.

Now the screens have been tidied up and made to look positively elegant.

It would have appeared difficult to most people to improve the original *Zardax*. But there is no doubt *Zardax 2* is, indeed, a considerable improvement.

Is it the best word processing program in the world?

Very probably.



## Periodic decimal fractions with computers

by Charles P. Binder

The conversion of common fractions is a familiar practice. These common fractions can be expressed as repeating decimals that fall into two categories:

1. "Terminating decimals" that end with repeated zeros.
2. "Non-terminating decimals" that repeat non-zero groups of digits.

The denominator determines whether the fractions will be terminating or non-terminating. Let us see why.

Consider only the common fractions that are reduced to lowest form, that is, fractions whose numerators and denominators share no common factors other than one. Those fractions that terminate have denominators that contain no prime factors other than two and five, for example,

$$\begin{aligned} 1/2 &= 0.50 & 1/4 &= 0.250 \\ 1/20 &= 0.050 & 1/25 &= 0.040 \end{aligned}$$

This pattern can be verified if we transform each to a fraction whose denominator is a power of ten.

$$\begin{aligned} 1/2 &= 5/10 & 1/4 &= 25/100 \\ 1/20 &= 5/100 & 1/25 &= 4/100 \end{aligned}$$

This "transformation" can only be accomplished when the initial denominator "divides" a power of ten or, more properly, if it is a factor of a power of ten.

### Prime factors

Non-terminating decimals result when the denominator of the fraction contains prime factors that do not divide a power of ten. For these decimals, groups of non-zero digits are repeated. The length of the group is called the period and is a function of the magnitude of the denominator. The maximum period of an expansion is one less than the denominator. Thus, if the denominator is 7, the maximum period is 6.

In division, the remainder determines the repetition. If the fraction were  $x/y$ , the period would be determined as soon as a remainder (in the subtraction

process of the division algorithm) appeared twice. With  $y$  as the denominator, the range of possible remainders is 0 through  $y - 1$ . Discounting 0 as a remainder, since it would lead to a terminating decimal, we have  $y - 1$  different remainders and, at most,  $y - 1$  opportunities for repetition.

### Example

Let's examine the fraction  $3/7$  as an example. Begin in the division algorithm by recording a quotient of 0.4. In the subtraction that follows, the remainder can only be one of six different possibilities (the digits 1 through 6). If the remainder were greater than 6, we would have to admit that our quotient was "too small" and begin again with a larger quotient.

Program 1 is written in BASIC; it should run on any computer system. Normally,

any division performed with a computer is limited to the number of decimal places the language allows (usually 6); however, this program will allow the display of 100 digits (or more if desired) in the expansion of the fraction. Sample output appears in table 1.

### Concepts

The computer offers an ideal opportunity for students to discover these concepts themselves. Students can easily input different fractions and observe, first-hand, the consequences of varying the denominators. They can

quickly generate sufficient cases for analysis.

### Explanation of the program

1. This program will carry out division to display 100 decimal places; altering the last value in line 90 will permit the user to modify the number of decimal places displayed.

2. After the data are entered in line 60, A is assigned the integral value of the quotient.

3. Line 80 begins the printing process by printing the original fraction and the integral part of the quotient with the decimal point.

4. The loop contained in lines 90-120 generates the remaining decimal digits and prints them one at a time. The process used is similar to that performed in the mechanical process of the division algorithm: the product of the previous quotient (A) and the divisor (D) is subtracted from the existing dividend (N), whereupon it is multiplied by 10 to keep the result an integral value.

5. Line 110 repeats the division process by assigning A the integral part of the quotient, and line 120 prints out this digit.

#### PROGRAM 1

```

10 REM CARRIES OUT DIVISION TO 100 DECIMAL
    PLACES
20 REM TO ALTER NUMBER OF DECIMAL PLACES
    PRINTED.
30 REM CHANGE THE LAST VALUE IN LINE 90
40 REM
50 PRINT "ENTER THE NUMERATOR AND
    DENOMINATOR"
60 INPUT N,D
70 A = INT(A/D)
80 PRINT N;" / ";D;" = ";A;""
90 FOR I = 1 TO 100
100   N = (N-D*A)*10
110   A = INT(N/D)
120   PRINT A;
130 NEXT I
140 END
    
```

TABLE 1

Sample Output

```

3 / 7 = 0 . 4 2 8 5 7 1 4 2 8 5 7 1 4 2 8 5 7 1
4 2 8 5 7 1 4 2 8 5 7 1 4 2 8 5 7 1 4 2 8
5 7 1 4 2 8 5 7 1 4 2 8 5 7 1 4 2 8 5 7 1 4
2 8 5 7 1 4 2 8 5 7 1 4 2 8 5 7 1 4 2 8 5 7
1 4 2 8 5 7 1 4 2 8 5 7 1 4 2 8 5

5 / 17 = 0 . 2 9 4 1 1 7 6 4 7 0 5 8 8 2 3 5 2
9 4 7 0 1 7 6 4 7 0 5 8 8 2 3 5 2 9 4 1 1 7 6
4 7 0 5 8 8 2 3 5 2 9 4 1 1 7 6 4 7 0 5 8 8
2 3 5 2 9 4 1 1 7 6 4 7 0 5 8 8 2 3 5 2 9 4
1 1 7 6 4 7 0 5 8 8 2 3 5 2 9 4 1

4 / 13 = 0 . 3 0 7 6 9 2 3 8 4 6 1 5 3 8 4 6 1
9 5 6 5 2 1 7 3 9 1 3 0 4 3 4 7 8 2 6 0 8 6
9 5 6 5 2 1 7 3 9 1 3 0 4 3 4 7 8 2 6 0 8 6
9 5 6 5 2 1 7 3 9 1 3 0 4 3 4 7 8
    
```

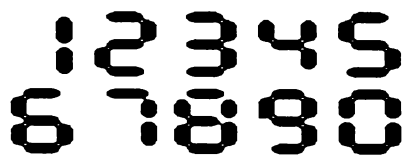
## Print using for compiled Applesoft programs

by Ulrich Stiehl

### What is Print Using?

Numbers are all important in the laboratory. So computer printouts will always contain numbers in some columnar form or other. If programs have to be written in *Applesoft* BASIC for the Apple II Plus or Apple IIe, formatting of numbers becomes a problem, as the so-called PRINT USING command for rounding, formatting, and aligning numbers is missing.

Although several machine language subroutines simulating PRINT USING



by use of the ampersand (&) command have been presented, these subroutines invariably rely on Applesoft internals (pointer, etc.), which are no longer valid after compilation of the source program. In contrast, the following PRINT USING assembly program is completely transparent to the user and hence compatible with any Applesoft compiler (TASC, HAYDEN, EXPDITER, SPEEDSTAR).

All the user has to do is to set up a dummy *USR* function (= user defined subroutine) in his or her program

wherever a variable is to be printed. In a program line such as

```
10 N = USR (N)
```

the value of number N (the name of the variable is irrelevant) is placed in the floating point accumulator and then a JMP (= machine language jump) is done to address \$000A.

```
000A: 4C 70 94 JMP $9470
```

will cause a JMP to the beginning of the PRINT USING assembly subroutine. This subroutine prints out N in the desired format and returns to program line 10 assigning N to N, so the value of this variable is not lost.

### What parameters can be defined?

The origin (O) of the PRINT USING subroutine is at address 38000 (hexadecimal \$9470). The program allows for the following modifications by poking the appropriate values:

```
POKE O + 3, 141 RETURN
POKE O + 3, 0 no carriage return
```

If you poke 141 in memory location O + 3, each formatted number will be followed by a carriage return. Any value other than 141 suppresses the carriage return, so several numbers can be printed in ONE line.

```
POKE O + 4, 160 SPACE 123.45
POKE O + 4, 174 ..... ..123.45
```

If a formatted number is shorter than the length defined, it will be filled out with whatever is poked in memory location O + 4, for instance spaces, leaders, etc.

```
POKE O + 5, 11 -1234567.89
POKE O + 5, 15 -1.23456789E-12
```

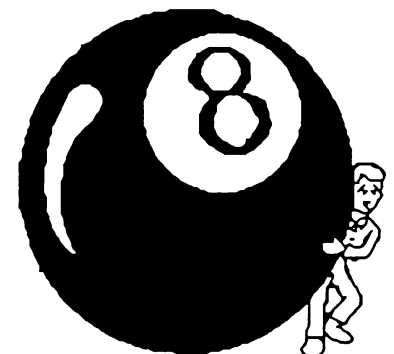
By poking a value in the range 11 through 15 into memory location O + 5, you can define the length of the edit pattern. Length 15 is required if numbers in scientific notation are expected. Length 11 is recommended for non-exponential numbers.

```
POKE O + 6, 1 0.0 /99999999.8/
POKE O + 6, 2 0.00 /9999999.98/
POKE O + 6, 3 0.000 /999999.998/
```

The number of decimal places may be 1 through 3. Since the mantissa of Applesoft floating point numbers comprises 9 digits, rounding to the desired number of decimal places is not always possible. If the length of the edit pattern is 15 and a number cannot be properly rounded, it is displayed as is. Otherwise spaces or leaders will be displayed, which is more appropriate than chopping off digits.

### How does the program work?

Each Applesoft floating point number requires 5 bytes = 40 bits = packed form. Numbers that are operated upon (by



# PROGRAMMING

## Print Using for Compiled Applesoft Programs

multiplication, division, etc.) are put in 6-byte accumulators (non-packed form), the most important of which is the floating point accumulator (FAC). The USR command places N into FAC jumping to the PRINT USING subroutine, which performs the following operations.

For the sake of simplicity, let's assume that the number N = 12345.678 is to be rounded to 2 decimal places and printed as an 11-digit formatted number with leaders:

- 1) FAC = N is saved for later restoring.
- 2) Adjustment is made in the edit pattern for the decimal point. The blank edit mask "....0.00" is generated.
- 3) FAC (12345.678) is multiplied by 100 (1234567.8). For rounding purposes 0.5 is added (1234568.3). The result is truncated (1234568) and transferred to the string buffer for floating point numbers starting at \$100.
- 4) The actual string length (7) is determined, and it is checked whether "1234568" contains "E" (scientific notation) or does not fit into the edit pattern (actual length > defined length).
- 5) Since our number was successfully rounded, it is put into the edit pattern digit from right to left skipping the decimal point. ("1234568" combined with "....0.00" results in "...12345.68")
- 6) The filled-in edit pattern is printed out digit by digit from left to right.
- 7) FAC is restored and the subroutine returns to the calling Applesoft program which assigns FAC to N.

In conclusion it should be mentioned that the PRINT USING subroutine is extremely fast, capable of displaying up to 2000 formatted numbers per minute on the monitor.

```

9470- 4C 91 94    JMP    $9491
9473- 8D A0 0B    STA    $0BA0
9476- 02          ???
9477- 00          BRK
9478- 00          BRK
9479- 00          BRK
947A- 00          BRK
947B- AE AE AE    LDX    $AEAE
947E- AE AE AE    LDX    $AEAE
9481- AE AE AE    LDX    $AEAE
9484- AE AE B0    LDX    $B0AE
9487- AE B0 B0    LDX    $B0B0
948A- 00          BRK
948B- 00          BRK
948C- 00          BRK
948D- 00          BRK
948E- 00          BRK

```

```

948F- 00          BRK
9490- 00          BRK
9491- A0 00        LDY    #$00
9493- B9 9D 00     LDA    $009D,Y
9496- 99 8A 94     STA    $948A,Y
9499- C8          INY
949A- C0 07        CPY    #$07
949C- D0 F5        BNE    $9493
949E- AD 75 94     LDA    $9475
94A1- C9 0B        CMP    #$0B
94A3- 90 04        BCC    $94A9
94A5- C9 10        CMP    #$10
94A7- 90 06        BCC    $94AF
94A9- A9 87        LDA    #$87
94AB- 20 ED FD     JSR    $FDED
94AE- 60          RTS
94AF- AD 76 94     LDA    $9476
94B2- C9 01        CMP    #$01
94B4- 90 F3        BCC    $94A9
94B6- C9 04        CMP    #$04
94B8- 90 03        BCC    $94BD
94BA- 4C A9 94     JMP    $94A9
94BD- A9 0A        LDA    #$0A
94BF- 8D 77 94     STA    $9477
94C2- A9 0B        LDA    #$0B
94C4- 8D 78 94     STA    $9478
94C7- A9 0C        LDA    #$0C
94C9- 8D 79 94     STA    $9479
94CC- AD 76 94     LDA    $9476
94CF- C9 02        CMP    #$02
94D1- F0 19        BEQ    $94EC
94D3- C9 01        CMP    #$01
94D5- F0 0C        BEQ    $94E3
94D7- CE 77 94     DEC    $9477
94DA- CE 78 94     DEC    $9478
94DD- CE 79 94     DEC    $9479
94E0- 4C EC 94     JMP    $94EC
94E3- EE 77 94     INC    $9477
94E6- EE 78 94     INC    $9478
94E9- EE 79 94     INC    $9479
94EC- AD 74 94     LDA    $9474
94EF- A2 0E        LDX    #$0E
94F1- 9D 7B 94     STA    $947B,X
94F4- CA          DEX
94F5- 10 FA        BPL    $94F1
94F7- A9 B0        LDA    #$B0
94F9- AE 78 94     LDX    $9478
94FC- 9D 7B 94     STA    $947B,X
94FF- E8          INX
9500- A9 AE        LDA    #$AE
9502- 9D 7B 94     STA    $947B,X
9505- A9 B0        LDA    #$B0
9507- E8          INX
9508- E0 0F        CPX    #$0F

```



# PROGRAMMING

# Print Using

950A-	F0 06	BEQ	\$9512	9584-	EC 78 94	CPX	\$9478
950C-	9D 7B 94	STA	\$947B,X	9587-	90 F5	BCC	\$957E
950F-	4C 05 FF	JMP	\$FF05	9589-	AE 77 FF	LDX	\$FF77
9512-	A5 9D	LDA	\$9D	958C-	9D 7B 94	STA	\$947B,X
9514-	20 39 EA	JSR	\$EA39	958F-	A9 0F	LDA	#\$0F
9517-	AD 76 94	LDA	\$9476	9591-	38	SEC	
951A-	C9 01	CMP	#\$01	9592-	ED 75 94	SBC	\$9475
951C-	F0 11	BEQ	\$952F	9595-	A8	TAY	
951E-	A5 9D	LDA	\$9D	9596-	B9 78 94	LDA	\$9478,Y
9520-	20 39 EA	JSR	\$EA39	9599-	20 ED FD	JSR	\$FDED
9523-	AD 76 94	LDA	\$9476	959C-	C8	INY	
9526-	C9 02	CMP	#\$02	959D-	C0 0F	CPY	#\$0F
9528-	F0 05	BEQ	\$952F	959F-	D0 F5	BNE	\$9596
952A-	A5 9D	LDA	\$9D	95A1-	4C E5 FF	JMP	\$FFE5
952C-	20 39 EA	JSR	\$EA39	95A4-	AC 75 94	LDY	\$9475
952F-	20 72 EB	JSR	\$EB72	95A7-	C0 0F	CPY	#\$0F
9532-	A5 A2	LDA	\$A2	95A9-	F0 0C	BEQ	\$95B7
9534-	8D 90 94	STA	\$9490	95AB-	AD 74 94	LDA	\$9474
9537-	20 AF EB	JSR	\$EBAF	95AE-	20 ED FD	JSR	\$FDED
953A-	20 A0 E7	JSR	\$E7A0	95B1-	88	DEY	
953D-	20 23 EC	JSR	\$EC23	95B2-	D0 F7	BNE	\$95AB
9540-	AD 90 94	LDA	\$9490	95B4-	4C E5 95	JMP	\$95E5
9543-	10 03	BPL	\$9548	95B7-	20 EF 95	JSR	\$95EF
9545-	20 D0 EE	JSR	\$EED0	95BA-	20 34 ED	JSR	\$ED34
9548-	20 34 ED	JSR	\$ED34	95BD-	A2 00	LDX	#\$00
954B-	A0 00	LDY	#\$00	95BF-	BD 00 01	LDA	\$0100,X
954D-	B9 00 01	LDA	\$0100,Y	95C2-	F0 20	BEQ	\$95E4
9550-	F0 0D	BEQ	\$955F	95C4-	ED FD F8	SBC	\$F8FD
9552-	09 80	ORA	#\$80	95C7-	E0 0F	CPX	#\$0F
9554-	00	BRK		95C9-	F0 0A	BEQ	\$95D5
9555-	FF	???		95CB-	AD 74 94	LDA	\$9474
9556-	00	BRK		95CE-	00	BRK	
9557-	C9 C5	CMP	#\$C5	95CF-	FF	???	
9559-	F0 49	BEQ	\$95A4	95D0-	00	BRK	
955B-	C8	INY		95D1-	E8	INX	
955C-	4C 4D 95	JMP	\$954D	95D2-	4C C7 95	JMP	\$95C7
955F-	8C 7A 94	STY	\$947A	95D5-	A2 FF	LDX	#\$FF
9562-	00	BRK		95D7-	E8	INX	
9563-	FF	???		95D8-	BD 00 01	LDA	\$0100,X
9564-	00	BRK		95DB-	F0 08	BEQ	\$95E5
9565-	F0 02	BEQ	\$9569	95DD-	09 80	ORA	#\$80
9567-	B0 3B	BCS	\$95A4	95DF-	20 ED FD	JSR	\$FDED
9569-	A2 0F	LDX	#\$0F	95E2-	4C D7 95	JMP	\$95D7
956B-	AC 7A 94	LDY	\$947A	95E5-	AD 73 94	LDA	\$9473
956E-	88	DEY		95E8-	C9 8D	CMP	#\$8D
956F-	30 1E	BMI	\$958F	95EA-	D0 03	BNE	\$95EF
9571-	CA	DEX		95EC-	20 ED FD	JSR	\$FDED
9572-	EC 79 94	CPX	\$9479	95EF-	A0 00	LDY	#\$00
9575-	F0 FA	BEQ	\$9571	95F1-	B9 8A 94	LDA	\$948A,Y
9577-	B9 00 01	LDA	\$0100,Y	95F4-	99 9D 00	STA	\$009D,Y
957A-	C9 AD	CMP	#\$AD	95F7-	C8	INY	
957C-	F0 06	BEQ	\$9584	95F8-	C0 07	CPY	#\$07
957E-	9D 7B 94	STA	\$947B,X	95FA-	D0 F5	BNE	\$95F1
9581-	4C 6E 95	JMP	\$956E	95FC-	60	RTS	

# The Worm in the Apple

Ah, the delights and problems of being a Worm. Note a friend of this Worm has just taken delivery of a new Macintosh XL - the Lisa that was - and a splendid machine it is to be sure. Included with it was a card offering a free subscription to a magazine called *MacWorld*, a glossy number which concentrates on the doings of that magnificent machine.

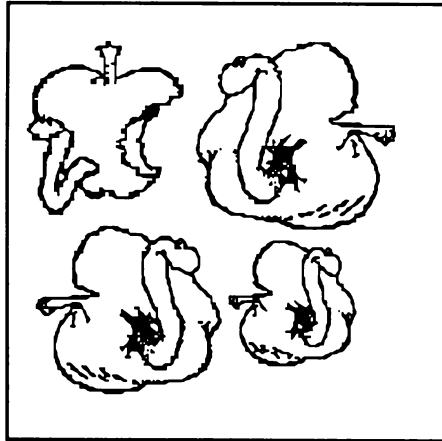
Imagine my surprise when I read "I understand this is a limited offer, available only to the first 100,000 respondents". When you consider no computer magazine in Australia has ever reached the 30,000 mark you might be forgiven for considering this was a piece of wishful thinking. If the magazine went to 50% of the Macintosh buyers in Australia this would mean that *MacWorld* confidently expect sales of the Macintosh to go over 200,000 units in the near future, making it the best-selling computer in the history of Australia by a factor of at least two.

This roseate dream of a future surrounded by Macintoshes was shattered when I turned the card over. It instructed the purchaser to send the card to Apple Computer at a strange address in San Francisco which, while being

adjacent to Cupertino, is another place altogether. The postage on the card is prepaid and free - if you post it in the United States, not if you post it in Australia. The message said, "Please be sure to send in the card today." My friend has decided there is little point in rushing things.

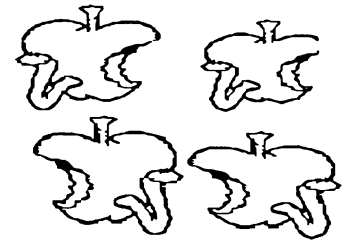


It is not that I have anything against the Welsh nor yet against Wales - a damp soggy country where the main export is



bad beer and mendacity - but I am getting increasingly worried over the Celtic fringe's undue influence on the world of computers. The latest shock to my system came when I met Apple's software guru David Southall and he started spouting to me in a strange language which, I am assured, is Welsh. This is not a language which is extensively used in computer programming as the amount of spit involved ruins the circuitry.

This is too much to bear. It is bad enough to have to put up with the illiterate outpourings of the computer editor of a Sydney daily newspaper without having to listen to this gibberish in the flesh. Be warned, even a Worm can turn.



The circulation war between the computer magazines continues apace with, or so I am assured, rival editors very nearly coming to blows over circulation claims. The latest broadside came in a recent edition of *Ad News* when one stalwart publisher, a man of refinement and taste, ran a full page advertisement commenting on a rival's circulation claims. Across the advertisement was written in letters of flaming red a rude word. Knowing that this is a family magazine and not wishing to offend the susceptibilities of our younger readers I will merely say the word started with a "b", ended with a "t" has two "l"s in the middle and was not unconnected with agriculture.

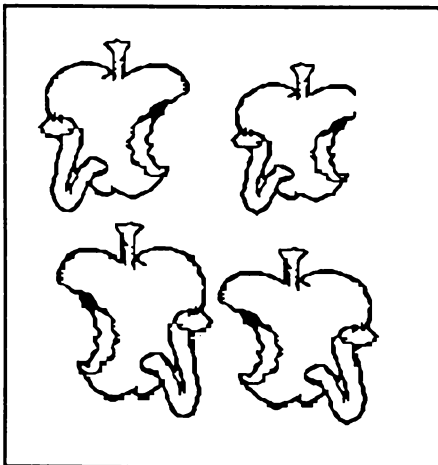
My mother always told me that computing was an occupation for gentlemen. How times have changed. I have noticed this deterioration in good manners over the past few years with great sadness. I used to think it started when the legendary "Enforcer" was in his poster-tearing mood. Now I believe it started when we allowed the Welsh into the industry.



If you believed everything you read in the papers - and you shouldn't, you really shouldn't - you would think that Apple in America is in all sorts of *sturm* and *drang*.

My TransPacific informer, Aloysius P. Worm III, assures me this is not the case. This suing and counter-suing goes on in American companies because in the United States there are a) too many lawyers and b) they, as a group, are not very bright.

(If you think the lawyers employed by Apple are brighter than the rest consider their track record in stopping illegal Apples being made and sold around the world. An underprivileged, macrocephalic, Welsh troglodyte could have



achieved better results). And so, when Jobs left to pursue his other interests it was Cupertino to a brick Apple's legal department would arise from their customary somnolence and make threatening noises.

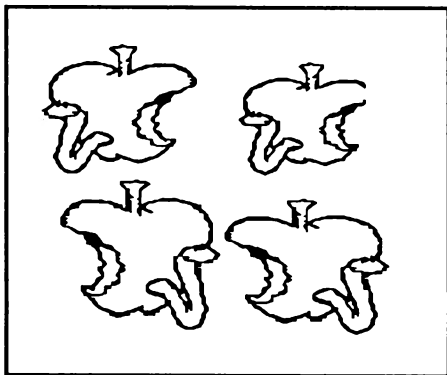
Aloysius tells me this is Standard Operating Procedure in the United States and is a tale told by an idiot, full of sound and fury, signifying nothing. (If the legal department of Apple in Cupertino read this and decide to sue they should be warned there is no precedent listed on any of the electronic data bases - including Westlaw and Lexis - which show an American corporation successfully suing a Worm for libel.)

But it is all a great pity. Just when we are getting the news of all the good things that John Sculley and the Cupertino push are doing for the Apple II and for the Macintosh, we get this sordid washing of dirty linen in public. There is a phrase in Latin - a compulsory subject at a Worm's finishing school - which says *Cui bono?* Who benefits?

In this latest matter the answer must be - only the lawyers. It was in *Henry VI* that William Shakespeare wrote "The first thing we do, let's kill all the lawyers." A splendid sentiment that few - except for lawyers' mothers - would argue with.



It will come as no surprise to readers of this humble column to be told there is a Wormish relative working in the hallowed halls of IBM - She Who Must Be Obeyed. And my relative, who I will have to call "Blue" in case all is revealed and the wrath of IBM is unleashed on his defenceless head - has a strange tale, indeed, to tell me about the doings at that

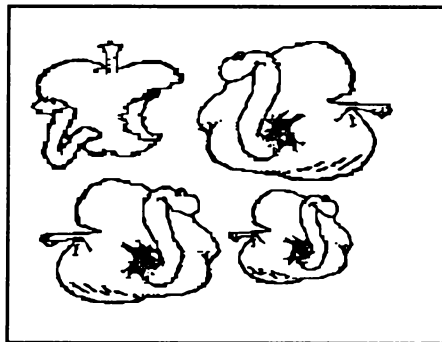


three lettered company. It appears they have just launched a new personal computer called the JX which is imported from Japan and seems to be the logical successor to the doomed and ill-fated IBM PCjr.

This new machine has been the subject of what could, unkindly, be called a stuttering start. Now it is on the market it is open for inspection by all and sundry. At first sight it appears to have exactly the same disk drive as the new Apple - 3.5 inch with something like 800k available for writing immortal prose to.

But it is not quite the same. Physically it may be identical. And it may use identical disks. But there are only 400k of space available on each disk.

Now plainly my kinsman "Blue" is going out of his brain when he tells me IBM deliberately choked down the drives so they only read and wrote to every alternate track. At first I considered this



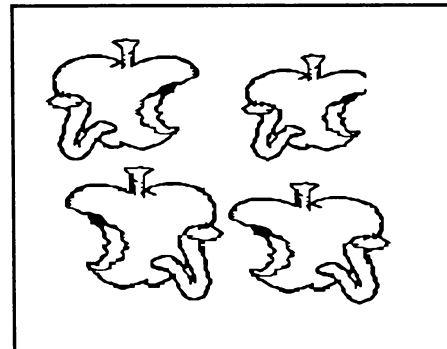
the ramblings of a heat enfevered brain. But I have now checked and it does, indeed, appear to be true.

I have never in all my born days heard the like.

There appears, on the surface, to be no logical reason for their action - Apple, after all, are giving us our full due.

"Blue" says, and I think he may well be right, that the reason IBM carried out this monstrous act was to make sure the law was not broken by happy home hackers putting two programs on one disk.

By restricting the size to exactly the same as the PC the programs could be copied over by a retailer and there would be no disk space left over. This is the current version that is now widely believed throughout the computer trade.



The only equivalent I can think of is Apple blanking off 32k of RAM from the standard 64k so users would not get too uppity.

If true, this story about IBM - She Who Must Be Obeyed - is a strange tale, indeed. I have anxiously enquired of "Blue" but he swears no Welsh person is involved.



What are the most complex directions connected with Apple?

The programming language for the Macintosh?

The intricacies of Pascal?

The wonders of ProDOS?

The answer is none of the above.

By far and away the most complex directions known to humanity are those regarding parking at the Stately Pleasure Dome in Ryde, Australia's very own Silicon Gutter.

Plainly Apple employees in Australia must be some of the most mobile of Antipodeans for though they have a car park, lo, as wide as all outdoors, the entrance sports a sign giving the most complex and minute directions about who can park where, with what and how. This Worm has decided it is all too difficult and only goes there by Worm-mobile, which takes up little or no parking space.

So complex are the parking instructions that I have been told the Managing Director, David Strong, when interviewing applicants for a position, tests them on their understanding of the parking regulations.

If they can answer five out of ten questions correctly they get the job. Now I do not believe this. I simply do not believe it. I trust we will receive a spirited denial from the delectable Inge.

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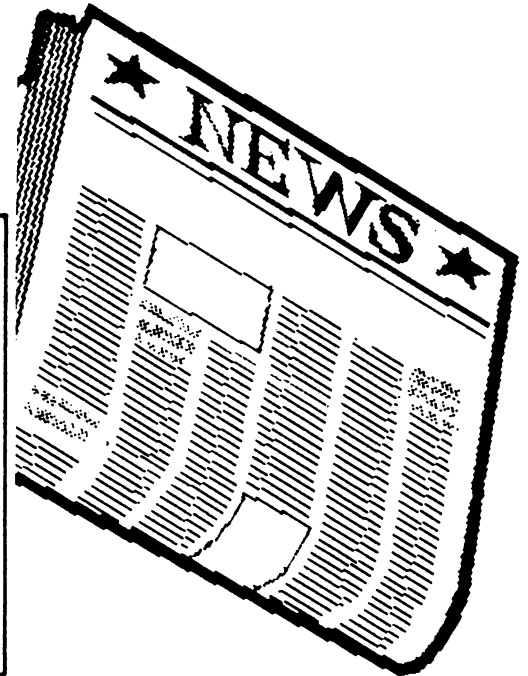
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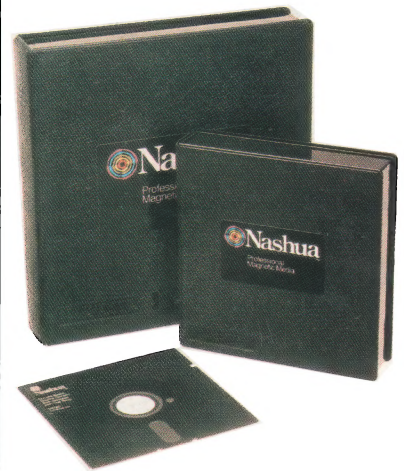
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